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NIMIT R. CHOWDHARY

Higher Education Delivery Systems — Trying the TQM Option - II

D.A. GHANCHI

Academic Freedom — The Fractious Scenario of Indian Higher Education

ANAND G. FADNIS

Learning in Laboratory Environment

VINEY KIRPAL

My Choice

A.M. AHMADI

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IN THIS ISSUE

Higher Education Delivery Systems — Trying the TQM Option - II 1
Academic Freedom — The Fractious Scenario of Indian Higher Education 5
Learning in Laboratory Environment 9
My Choice 12
Convocation
Kakatia University, Warangal 15
Campus News
Anna Varsity-Nagoya Instt. Exchange Programme 20
Improving Legal Studies & Research 20
Academic Institutions and National Integration 21
Literacy Awards 1996 22
Agriculture
Ram Dhan Singh Memorial Lecture 23
Current Trends in Librarianship 24
News from UGC
Countrywide Classroom Programme 25
Book Review 26
Research in Progress 28
Classified Advertisements 34

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Editor :
SUTINDER SINGH

Higher Education Delivery Systems — Trying the TQM Option - II

Nimit R. Chowdhary*

Preparing for Change

The implementation of TQM requires that administrators and teachers mediate areas of conflict. How well management functions during the transition will depend on its ability to follow the action guidelines presented below:

Action 1: Redefine the role of the teacher

Most higher education institutions have employed teachers on the basis of their possession of knowledge, skills and standards certified/awarded by various other educational bodies and commissions where they studied/worked or through which they were recruited. Administration has had relatively little control over professionals once they are hired, so they must have the right work habits, standards, and methods when hired. It has been assumed that the possession of this training and these work habits would lead to decision making that would meet the gold standard for an extended period of time.

The new set of decision-making skills required by TQM will have to include not only teaching skills, but also the ability and flexibility to be guided by a quest for continuous improvement. This requires fundamental skills for statistical analysis of procedures and the ability to work with and in multidisciplinary teams. In essence, the routine tasks of the teachers and other providers will have to include basic statistics, and a variety of group process skills.

He must be an epitome of virtues. For this the input quality of teaching personnel must be good. In the University set-ups the selection process must be rather selective, for the teachers here are to serve the role models. We must endeavour to make the 'Quality of Worklife' lucrative enough to attract the best of talent. The structure should be such that the incompetent must be forced to improve or else leave on their own. The classical Indian model of the 'Guru' is the need of the hour. He must be a highly respected individual in the organisation — his respect and autonomy must be ensured at all coosts — a non-monetary incentive most sought after.

Action 2: Redefine the organisational culture

The West tend to look for the quick fix, the home run, and the Nobel Prize. While TQM may yield a home run, early on, the basic philosphy is one of incessant change, the hitting of lots of singles, and the tortoise over the hare. Imai observes that "Westerners are concerned with performance, while Easterners are concerned with both performance and process." The Eastern philosophy calls for continuous employee training to assist with continuous improvement. This means that there must be a change in what Kilmann refers to as culture, management skills, team-building strategy, structure, and

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reward system. Failure to address each in a systematic effort will greatly limit the implementation of TQM.

The apex administration must bear on itself the responsibility of creating and sustaining such a culture. Important here is to incorporate the 'role clarity'. Administration must understand its role as a support structure. There must be absolutely no confusion as regards the role and responsibility of each and no conflict whatsoever as regards the relative importance of the teaching and administrative staff.

Action 3: Redefine the role of administration

In TQM, the administrator becomes a symphony conductor, orchestrating the independent actions of a variety of professionals and project-oriented teams. This change really modifies current leadership roles at the top, middle, and bottom of the administrative hierarchy. The top administrators will do less of the decision making, leaving it to lower and middle levels of administration to make the majority of the decisions, often on a consensual basis among the departments involed. The role of top management, then, is to manage the culture and to allocate resources to support the change process. Top management will have to establish a planning process that is flexible enough to adapt to the propositions that the TQM process develops. Top management will have to be the spokespersons for the consumers who are not represented in the system, especially the students. Middle management has responsibility for monitoring the process of TQM and authorising implementation of the process changes that are identified for improvement of quality. Front-line administration must be evaluated as role models for TQM, and top managers have especially key roles in modelling, teaching, and providing feedback as part of the TQM process.

The aforesaid, role need not be confused with absolute 'Colonial British' like unresponsive, rigid and arrogant administration or get translated into snobbish bureaucracy.

Action 4: Empower the staff to analyze and solve problems

The most important challenge for administration is to empower the staff to gather data, analyze it, and make recommendations. This involves convincing the staff that it is safe to collect data and do something with the results. This means that management must overcome status barriers; must be diligent in convincing people to try out statistical quality control techniques, making sure that people get rapid feedback to their proposals; and must be diplomatic. Administrators also have to act as liaisons if problems turn out to have multiple causation (as they so often do). They have to be able to see the system in a systems way, focusing not first on their own units but on a component in a complex system. Most of all, they must all be supporters of the massive social changes that TQM can require.

Empowerment of the staff is one the hallmarks of the TQM model. There is an unfound fear of seniors in the organisation of losing control which results in departmental team members being unavailable to participate in team activities. Conspicuity by fundamentals is undesirable. Transparent working fosters confidence and morale of the workers. We must remember each individual is capable of contributing, whether or not he contributes is a different thing. Non-contributing individuals is a failure on the part of the university set-up and not the individuals.

Action 5: Change organizational objectives

The institution's objectives need to be expressed in terms of both periormance objectives and process objectives. This means that programs will have to set their own quality objectives period by period as they develop the capacity to measure, follow, and modify their own processes.

Action 6: Develop mentoring capacity

The teachers and the administrators will both perceive the changes as risky to implement and threatening to their professional identity. They will need models of behavior to follow and mentors with whom they can discuss their plans and feelings about the risks involved. Seniors who are convinced of the importance of TQM are going to provide advice and support. University typically has a set of highly competent individuals who can serve as mentors. The organisation must strive hard to ensure their continuous improvement through all possible means.

Action 7: Drive the benchmarking process from the top

The hardest process step will be the bench marking process that must be led from the top of the institution. Top management is the group responsible for assessing the outside environment. They have the capacity to identify the best performance of competitive organizations and compare internal operations with these high-performance institutions. This will not happen effectively without strong leadership from the top down.

The unit of analysis for Benchmarking is critical. It is not just "Do we have the best Management department in the country?" It is also "Do we give our students the best experience? Do we attract the visiting faculty better than anyone else? Are we making fewer processing errors and fewer delayed reports than last month, and are we working to make this the best in the world? Why a fall in the number of applicants seeking admissions to our various programmes is reported?"

Action 8: Modify the reward system

The reward system of higher education is constrained to a high degree by professional status and prerogatives. The higher education institution, however, must reserve some rewards for those who cooperate most whole heartedly and effectively,. The rewards are most likely to be psychic rather than financial payments. They can effectively include participation in quality improvement programme (QIP), career advancements, nominations to various committees, travel, entertainment, employee recognition (best used for teams), and vacation time. For example, one major U.S. company that is very successful at TQM has eliminated all financial awards in its suggestion system. It now gives books on how to improve job performance and trips to continuing education programs instead. The ideal reward system should reward both performance and process development.

Important here is to mention that the discretionary powers of the top management must never be used to instil fear or award punishment except under most inevitable situations. The role must be one of fatherly protection and not that of police. The traditional employee-management relationship must be done away with. The employees are the most important endowments of the university.

Action 9: Go outside the Higher Education sector for models

Xerox Corporation of Stamford, Connecticut, has been one of the most successful adherents of TQM. TQM has helped the company to thrive in the highly competitive copier market and to compete well enough to recover some of its market from the Japanese. David T. Kearns, Chairman and Chief Executive Officer of Xerox has suggested that the next benchmark for Xerox copiers after Japanese copiers is the telephone, with its attributes of both high reliability and low cost. Education leadership should not hesitate to go outside of the higher education sector for its models of consumer-driven quality. The obvious future targets are highly successful consumer service organizations such as healthcare, transport, banking, entertainment, etc.

Action 10: Set realistic time expectations

The process of adopting and institutionalizing TQM, like all organizational change processes, takes time under the best of circumstances, most likely three to five years. It is likely to take longer in a large, complex institution like a teaching institution. People will have to start with a realistic estimate of the time required. Two types of time are required — hours of input by already busy teachers and professionals and calendar time required to implement the program. The latter is illustrated even in the case of a very tightly controlled institution such as Xerox, where new issues concerning TQM institutionalization continue to surface five years after implementation. For example employee evaluation systems were not changed to include management commitment and role modelling for TQM, and college employment recruiters were not using TQM-related selection criteria until shortly before the firm received the Malcolm Baldridge Prize in 1989 in recognition of its successful implementation of TQM.

Action 11: Make the TQM program a model for continuous improvement

The cases cited above highlight possibilities for using the TQM program to model a continuous improvement orientation for the total organisation. Those who are responsible for program oversight must consciously challenge the TQM staff to suggest improvements in the program and respond rapidly and effectively. The professionals will be especially sensitive to any gaps between what is preached and what is practised by those associated with this program. They have already seen many programs come and go in recent years, and they must be convinced that administration is serious about TQM. Here actions will truly speak louder than words.

Action 12: Strengthen your communication system

Important for all kinds of improvements on a continuing basis is the effectiveness of communication systems. May it be concurrent feedbacks on the concurrent performance, or the need of lateral linkages while working on teams (may it be departmental or cross-functional teams). Needless to emphasize the importance of informal communication and intelligence systems. These cannot be formalised. Further these are capable of being the most objective and unbiased channels. Essential it is to ensure the reliability of this channel — cross checking and redundancy can be used with some certainty of purpose. This is a 'Handle with Care' tool.

What Fails TQM

The success of TQM transformation is dependent on certain crucial factors. Behaviours which have been observed in our context to act as barriers to TQM are asunder :

- Failure to appreciate TQM as a cultural revolution — a process of organizational change. This change normally requires a change-agent, a catalyst who can initiate and guide through transformation. The transformation is only possible if there is an external change agent working hand-in-hand with an internal facilitator. The internal facilitation is a full time activity because the change is dynamic, delicate and many times sensitive to political pressures arising out of fear of unknown and fear or shift of power balance.
- Failure of top-management to have a long term vision. Seeking immediate/short term gains defeats the very purpose and the ethos.
- Lack of exemplified top administration commitment. A sense of powerlessness on part of seniors by virtue of empowering subordinates. The feeling is that a part of their power is lost.
- Fear of senior administration of losing control which results in departmental team members being unavailable to participate in team activities.
- Apprehension of senior management about the efficiency of TQM methodology.
- Myopic view of looking at training as a cost rather than long term investment.
- Lack of faith in effectiveness through process changes.
- Belief in traditional system that people need to be told what is to be done, and their work must be monitored. The belief that the number of people you have reporting to you is a visual expression of power you hold. A flat and lean organisation means loss of power by virtue of less people to order around.
- Lack of leadership and determination to drive the transformation through.
- Not adhering to a structured and sustained intervention plan.
- Failure to foster a conducive climate in terms of open communication system; non-restructuring of HRD systems to attain fulfilment of higher order needs; not basing rewards solely on performance, and so on.

It is presumed that TQM shall alter the entire way of working in an organisation. This is a misnomer because if the prevalent work processes are conducive to fostering the total quality philosophy, there is no need for change. TQM is not a panacea for today's problems. It is a long term strategy for survival.

TQM, as the name suggests, has to be steered and managed. It calls for a strong leadership at all levels. Leadership involves potential leaders being identified at the mind-set sessions and developed to lead the movement at respective levels. They are developed as facilitators, and ultimately groomed to become trainers. It is essential therefore that the organisation must develop its HRD process in manner so as to be able to retain its people. Keeping the organisation lean enables close and personal interaction across levels which are strong motivators. It renders to people the freedom to try out new ideas thereby fostering creativity and innovation. However it must be ensured that the system rewards team work.

In Sum

Our archaic and outdated system of processes in our university must be replaced. A passing remark in this direction may be reminding—

Decision making channels must be shorter, so as to ensure quick decisions which are time saving, timely, free from rigidity, implementable and more effective.

Third party treatment to students must be done away with. We must be all the more responsive to their requirements. All matters relating to the students must be more simple and comfortable to remove all 'irritants' of procedures.

Universities must unhesitantly invest on equipment, teaching and research facilities. These alone are the support in the university's quest of truth. New procedures need be adopted for procurement and maximum return should be ensured before investments.

Appointments and all service matters like, leave, housing and travel should be flexible removing all rigidity.

Quality improvement of all teaching and non-teaching staff should be a rule rather than exception. Expense on Quality is not a cost but an investment.

Budgeting, allocation and monitoring should be done on scientific norms and transparency is desirable. Zero-based budgeting must be practised with performance as criteria.

Our traditional thinking and management systems are at variance. Liberalization has seen modern concepts flowing into our country as a storm. So has TQM. It therefore has created a fear of the unknown. But do we have a choice?

(Concluded)

ACADEMIC FREEDOM
The Fractious Scenario of Indian Higher Education

D.A. Ghanchi*

Higher education in India has now grown into a huge enterprise with the student population touching the five million mark. The yearly increase in student population is in the neighbourhood of 5%. By the time the country completes the first decade of the 21st century, the student population will have crossed ten million ! There will be a clamour for non-conventional branches of knowledge in all areas — sciences, humanities, technology, art, etc. There will be exacting demands of global forces for human resource with state of the art skills and competencies in areas unknown so far. To meet these higher education will have to be simultaneously imaginative, innovative and pro-active with considerable space for experimentation, diversification, flexibility and symbiosis with myriad technologies on one hand and complexities of human life on the other.

It is axiomatic that academic freedom is one of the most impact-wielding ingredients that determine the quality of education in a given environment. At the same time it is also recognised that such freedom is an extremely difficult dimension of human behaviour to operate. Albert Einstein, a tireless protagonist of academic freedom said : "Politics is harder than physics. And education conceived as constitutional politics directed to escalate transformative potential of future generations is even harder than the politics of will to power for domination and subjugation of people. This is the reason why academic freedom is the most difficult freedom of all. And a university constitutes a permanent invitation for us all to exercise and enjoy this freedom."

This is why as an ideal to inform the thinking and practice of education, academic freedom has been coveted intensely, fought for valiantly and guarded jealously all these years the world over. The ancient Indian model of education management represented by the *Gurukul* system exemplified this ideal in meticulous, unadulterated practice, for, unlike the present day phenomenon of interference in and even domination of the field of education in India by politicians, bureaucrats and private managements, the hallowed. *Gurukul* system remained not only untouched but also highly revered by the powers that be then. The incident the poet Kalidas has graphically narrated in his immortal play, *Abhigyanshakuntalam* is an evidence of this tradition. King Dushyanta had not only to seek the permission of the renowned sage Kanva before entering his *Ashrama* but also had to take off and keep outside the entrance all the appurtenancies of his royal identity and state power. The sacred precincts were thus out of bounds for any display of earthly power let alone its influence on them. A comparison with the present-protocol of convenience found being followed at our universities and colleges in several parts of the country would be as painful and diminishing as the one followed in the *Gurukulas* was pleasing and uplifting.

In respect of the value of freedom in general John Stuart Mill has a significant warning to offer. He says, "People should not let their liberties at the feet of even a great man, or trust him with powers which enable him to subvert their institutions." This applies to all walks of life, politics, administration, government, industry, commerce, social service and even to private life. Commenting on the unhealthy practice followed by several political parties in post-independence India passing resolutions empowering their presidents to take decisions on their behalf on vital matters, even though by their own constitutions they were duty bound to take those decisions, Vinoba Bhave said that in the Indian political set-up people seemed to have forgotten that they had shoulders at all on which they could have carried the responsibility of decision-making.

Unfortunately the academic world in India too has not been free from this spinal weakness of abjuring the right to be free in thought and in action. And this has been so despite the example of academic freedom set by our freedom fighters under the leadership of Mahatma Gandhi who set up an independent model of national education some of whose specimens like the Jamia Millia Islamia or the

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Vishwa Bharati or the Gujarat Vidyapeeth survive even today, albeit with alterations in form as well as spirit. It's not that the country since its independence has not had moments of introspection regarding the steady erosion of this great educational value, namely academic freedom. The University Education Commission (1946-48) chaired by the late Dr. S. Radhakrishnan, the National Commission on Education (1964-66) chaired by the late Dr. D.S. Kothari, the Statements of National Policy on Education of 1968 and 1986, the documents of the Programme of Action (POA) of 1986 and 1992, and a host of reports by several special committees and study groups on education have provided fora for deliberations, debate and decisions pertaining to, among other things, academic freedom both as an intrinsic and instrumental value. As a result the country has amassed a veritable intellectual reservoir large enough to evolve appropriate norms of academic freedom, define its specific contours, and work out modalities of implementing, monitoring, evaluating and further strengthening it.

However, the history of policy implementation in the sphere of education in our country since independence has been marked by sporadic measures enforced neither consistently nor seriously in many cases, not unoften left half way through, and even forgotten altogether with the passage of time. Take the case of setting up some 500 autonomous colleges and university departments in pursuance of the POA (1986). Hardly 20% of the targetted number has been made to be born, among whom the rate of mortality, let alone morbidity, is not negligible. A very noble experiment in multi-lateral academic freedom has, thus, been allowed to come to grief by acts of political, administrative and financial omission and commission. It has been pertinently said that the most expedient way to enjoy freedom is to surrender it so as to save oneself from the unpleasant prospects of discharging responsibility to sustain and defend that freedom.

One's attitude and commitment to academic freedom is shaped by one's perception of what education is and what a university stands for. As to the nature of education, Sydney Parnes, a contemporary American educational thinker has this to say : "Education should develop in the learner an attitude of self-confidence to be deliberately creative, a strong motivation to use one's creative potential, an open-mindedness to the ideas of others, greater curiosity in the conduct of affairs, an understanding of the importance of creative effort, greater sensitivity to problems, and greater ability to produce quality and original ideas." Obviously, higher education in India to be a world class education would require an environment of freedom, innovation, experimentation and enterprise. How can such environment be built up ! Peter Drucker, the noted American *Guru* of the science of management, has suggested the following four fold *Mantra* to build the environment that makes a human organisation highly productive in terms of its goals :

(i) *Involvement* : All the players in the field engage themselves in their respective tasks and activities towards a maximum realisation of personal as well as institutional goals;

(ii) *Participation* : Everyone in the process, howsoever humble or highly placed, has his stake in the mission, and therefore, he is encouraged to take part in its evolution, advancement and fruition;

(iii) *Empowerment* : Every member of the enterprise is equipped with knowledge, skills, competencies, expertise, tools, attitudes and rights to operate optimally and generate output maximally; and

(iv) *Understanding* : Awareness is constantly generated and updated on the part of all about who they are, what their roles are, how they are stitched with one another, how they will work in a team situation and what they will realise, materially as well as intellectually, morally and spiritually while struggling to realise individual and institutional goals.

The environment that is built up has to be constantly nurtured and sustained to ensure continuing durability to academic freedom, which, in turn, provides nourishment to the plant of education. This can be done by a four-fold strategy consisting of the behaviours of the players of the field. The behaviours are as given below :

(i) *Sharing* : The players share one another's ideas, experiences, knowledge, insights, perceptions, skills, joys, sorrows, concerns and commitments, and, thereby, they form a symbiotic communion among themselves on a footing of equality;

(ii) *Caring*: All the players in the field empathise with one another. They support one another with a genuine fellow feeling. There is a lot of sympathy for the sufferer. In setbacks people stand by one another. They care for the underdog, the neglected and the deprived. Through caring they build up a community as commonality of feelings and sensitivity;

(iii) *Moving* : It's a dynamic community wherein every member is actively engaged in purposeful, goal-oriented and onward moving tasks, putting in maximum moral, mental and physical effort, thereby, making things happen and take a desired shape;

(iv) *Challenging* : Every participant self-challenges to strive and to achieve, to overcome barriers and to excel in performance. He also accepts external challenges posed by tasks, by impediments and by umpteen constraints and deals with them with courage and aplomb. Challenges, from within and without, bring out the best of everyone's potential and steel him against all odds.

It is the blending of the *Mantra* and the strategy that could have made a qualitative difference in the shaping of an autonomous educational scenario in our country. Unfortunately, we could not make it though we ought to have done it. Human history has recorded that it is only such unconventional adventures that go to shape the destiny of the race excitingly and fulfillingly. Robert Frost has testified to this alchemy of success

"Two roads diverged
in a wood and I
Took the one less travelled by
And that has made all the difference."

It is such hazardous recourse to a divergent way in respect of Indian higher education that could have changed the educational scenario of the country, which would have been much different from what it is today after half a century of independent existence since 1947. Regrettably, therefore, both in concept and practice our education has continued to remain stuck in the same didactic, prescriptive, reactive, traditional rut the British had bequeathed us when they left the Indian shores. Be it the policy on education or the curriculum, teaching methods or testing procedures, administration or management, by and large, we have chosen to confine ourselves to the beaten track,which suits not an environment of moving and shaking academic freedom, but a static climate of conformity, inertia and command and control. It, therefore, should not surprise us if, even now, there are few takers of even the limited *Avatar* of academic freedom in the form of an autonomous affiliated college or a department of a university.

One's attitude to academic freedom is also shaped by one's perception of what a university stands for. It would be interesting to examine this issue in the context of the latest thinking in this respect. The interim report submitted recently to the Unesco by the International Commission on Education for the 21st Century appointed by it under the chairmanship of Mr. Jacques Delors describes the nature of a modern university :

(i) A university should be a scientific establishment;
(ii) It should generate knowledge and skills;
(iii) It should be a real cross-roads for learning throughout life;
(iv) It should be a partner in international cooperation; and
(v) It should be autonomous and accountable for its performance.

A university is conceived of as a vibrant, autonomous and progressive body because its role is to facilitate four types of learning among the learners, namely, (i) learning to know, (ii) learning to do, (iii) learning to be, and (iv) learning to live, and live together.

Barring a few exceptional examples of universities that pulsate with academic ethos in a climate of genuine freedom and adventure, a large number of them and their affiliated colleges fall outside the ambit delineated in the said report of the International Commission. It's a sad commentary on the present reality, and it is not without valid reasons. Be they the quantitative expansion, the lack of the basic infrastructure, the proliferation of sub-standard institutions, the weakness of the will to exert on the part of all, the pressures of the non-academic forces, the tendency to compromise even on core principles, and so on, they have conspired to create a fractured, ambivalent scenario leading us nowhere. The following Urdu poem aptly describes this pathetic reality

"Nikle the kahaan janne ke liye,
Pahunche hain kahan maaloom nahin;
Raahon mein bhatakte qadamon ko
Manzil ka nishaan maaloom nahin."

[We don't know where we intended to reach and where we have actually arrived. Verily the feet that wander aimlessly do not know even the signs of the destination they have to reach.]

But should we get paid put to this situation especially in view of the winds of globalisation blowing all over the world, and the choice that we as a nation have made to join the process of globalisation since 1991? Absolutely not. We need to place the country on the fast-track of development by empowering every citizen through quality education so as to enable him to participate and get involved in the great task of national transformation. There is no time to waste, for we are almost on the threshold of the third millenium.

What is the strategy for this ? There are some short-term measures which brook no delay. They are as follows :

(1) Let's liberate our teacher to begin with. Make him an autonomous agent; so that he enjoys freedom to think, to dissent and to decide how to teach, how to test and evaluate, how to counsel the student and what to do to make the classroom climate conducive to learning. The POA (1986) has rightly said that the teacher is the kingpin of the system of education, and no system can rise above the level of its teachers. It is, therefore, essential to sensitize our teacher and stimulate him to exercise his freedom within the precincts of the classroom to begin with. Albert Schweitzer has rightly emphasised the role of the free, refined individual to lead a movement and to realise an ideal, live the ideal of academic freedom. He says : "The power of ideals is incalculable. We see no power in a drop of water. But let it get into a crack in the rock, and be turned into ice, and split the rock, turned into steam, it drives the pistons of the most powerful engines. Something has happened to it which makes active and effective the power that is latent in it So it is with ideals. Ideals are thoughts. So long as they exist merely as thoughts, the power latent in them remains ineffective, however great the enthusiasm and however strong the conviction with which the thought is held. Their power becomes effective only when they are taken up into some refined human personality." Let every teacher be transformed into a votary of his professional freedom, and then he will be an unfailing agent of change.

(2) Let's empower the college principles and heads of university departments to assume and transact academic and managerial leadership roles vis-a-vis their universities. Provide them with clearly articulated instruments of instructions to guide and encourage them to function freely, fairly, fearlessly and effectively. They will thus be confident and competent enough to canalise the liberated energies of their teacher colleagues towards the realisation of the goal of quality education.

(3) Give another chance to the University Grants Commission's (UGC) scheme of autonomy for university departments and affiliated colleges. Scale down the tough conditionalities and implement the modified programme over the next five years.

(4) Provide training interventions to teachers, students and administrators to operate autonomy in their respective areas with accountability. Let them develop specific institutional models rather than enforce conformity to prescribed norms to begin with. Allow modified classroom instructional methods to encourage interaction as well as self-reliance.

(5) Lastly, carry out a continuing public relations exercise to market the idea of academic freedom. Take the media in confidence. This will wean the people away from stereotyped, public exam oriented, ritualistic teaching and motivate them to value academic freedom as a potent tool to achieve excellence in education.

These short term measures would inevitably need the support of the university bodies, teachers' and principals' organisations, student unions, and, of course, the government. They should primarily bank upon non-monetary resources. After all they form part of a morel crusade for academic freedom as a value.

The long term measures should form part of a viable policy on education, and must be supported by political will, monetary investment and moral boosting. This should be done in a given time-frame, say a decade and a half. Measures like the following ones should be adopted :

(1) All the affiliated colleges that satisfy conditions for the grant of autonomy should be made autonomous. A reasonable period, with due support, be given to the rest of the colleges to qualify for autonomy. Those that don't should be closed down. Every new college should be born as an autonomous institution;

(2) Present university acts be suitably modified to make academic freedom the guiding spirit of university administration, teaching and research;

(3) The present Accreditation and Assessment Council should be activated, be assigned with powers to set standards of excellence, norms of academic freedom and rules of the game to operate the autonomous system throughout the country to ensure international comparability.

(4) The present processes of academic planning, instructional programming, performance appraisal, dispute and grievance redressal and settlement, and institutional management should be reengineered by encouraging innovation, experimentation, research and development and thereby, the humanware of higher education should be freed

(Contd. on Page 11)

Learning in Laboratory Environment

Anand G. Fadnis*

Introduction

Laboratory work is an essential component of any science course; yet very little is known about what and how students actually learn in their laboratory classes. The present day science laboratories equipped with modern, and automatic/self recording instruments provide a complex but information-rich environment. Perhaps because of this and other reasons the students tend to perform their laboratory exercises in the most casual, routine and mechanical way without 'learning' the basic underlying concepts of the exercise. They seem to experience following main difficulties in doing laboratory work[1,2].

(1) An inability to integrate their experimental observations and results to their prior theoretical knowledge gained in classroom; and

(2) An inability to order and sequence their observations in the desired way so that unnecessary and irrelevant information/data can be omitted.

The present trend of inducting so called 'new' experiments with instruments leaves many gaps and weak links in the overall understanding of the subject concept. This gives a 'black box' concept for the laboratory work. Thus, the uncovering and understanding of the learning process and its outcome in terms of knowledge gain is a formidable challenge to the teachers conducting the laboratory classes.

Changing Concepts of Learning

It is now widely acknowledged that in the learning process mental states of the teachers and students play an important role. The two are considered as thinking individuals and the learning in the laboratory or classroom is much more than just the transfer of information from teachers to students. The learner literally transforms information into knowledge by image construction and verbal representations [3,4]. The complex environment of laboratory provides students with many opportunities to construct knowledge from their experimental observations and interpretations. If these opportunities are properly and correctly exploited then these can facilitate effective learning. However, the process of turning information into knowledge through learning process is not easy because students intensely resist new information as this leads to an extensive rearrangement of their previous laboriously constructed knowledge. Therefore the students are tempted to follow rote learning to meaningful learning.

V-Diagramming and Learning

New methodologies that match the constructivist learning theory[3,4] have now been used in science education and research. Amongst them V-diagramming[2,5] has the potential to help teachers investigate learning in laboratory both as a process and an end result.

V-diagram is a method of displaying and thinking about the learning process that constructs knowledge. It has been used as a way of analysing and evaluating experiments[2]. The information that is displayed allows students to avail of opportunities to make and understand the connections between thinking (theoretical knowledge) and observed facts (experimental observations and results). Thus, a laboratory can be viewed as a part of a network of understanding which can help in knowledge construction of a particular subject concept through a laboratory experiment or a series of experiments in the form of a laboratory project.

The knowledge construction starts with perceiving and thinking about 'events' and 'objects' which are placed at the focus/joining point of V-format (Fig. 1). The main theme is then placed at the centre portion and linked to both sides of V with an 'arrow' which indicates that learning process amounts to the periodic oscillations of thoughts between the two sides of V. The theoretical principles and concepts related to 'events' and/or 'objects' are placed on the left side of V whereas the 'records' (observations) and transformations (calculations, manipulations and extrapolation of data) along with 'claims' about knowledge and values (results and interpretations) are placed on the right side. Integration of 'two' sides helps and provides directions to stu-

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dents to think and realise about the constant interplay between the two sides of V in learning process. An illustrative example of V-diagramming of an undergraduate chemistry laboratory experiment is given in Fig. 2.

Implications of V-diagram study

The laboratory experiments formatted as V-diagram (Fig. 2) provide a clear perception to the students of what they are expected to perform and learn during the exercise. This can potentially help the teachers not only to investigate and understand the learning in the laboratory but also provide directions to formulate future effective instructional strategies. The method of investigation in the V-diagram study can be either interview (viva-voce) or written test based on the short answer questions or cooperative group discussions.

Teachers can use V-diagrams in the laboratory in atleast *two* ways:

(1) The prelaboratory instructions about an experiment can be provided in the form of V-diagram of that experiment. Care must be taken to ensure that the students are well exposed to all conceptual and experimental details elaborated on both sides of V. Then the students can be asked to probe the connections between the two sides of V; and

(2) An outline of V-diagram of the experiment can be given in the pre-laboratory instructions by the teachers. Then the students can be asked to complete and/or modify it as a prelaboratory activity or post-laboratory project report.

The V-diagram exercise can be evaluated and scored by considering the following major themes: (1) The Focus Question; (2) The objects and events observed; (3) The theories, concepts and principles required for understanding; (4) The records and transformations required for the analysis of the data; and (5) Knowledge claims (learning) made from the experiment.

Each of these themes can be assigned scores (marks) depending upon how a particular theme is developed and logically connected to other parts. Thus, the V-diagrams can be used to investigate barriers in the meaningful learning from the laboratory work and they can be also used as instructional tools to help students integrate their observations into knowledge.

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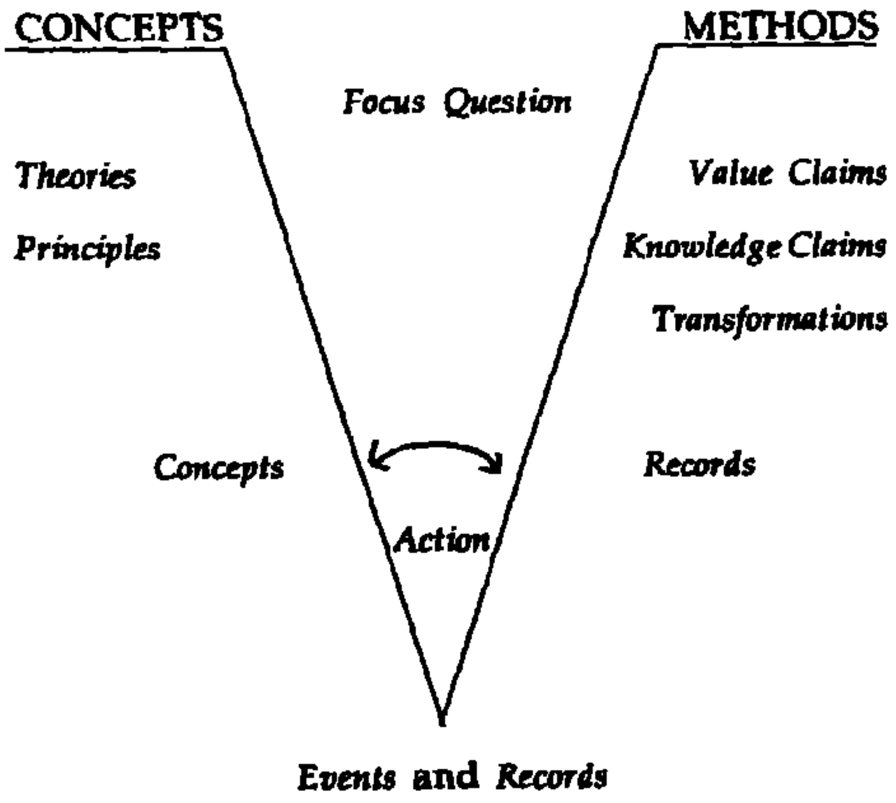
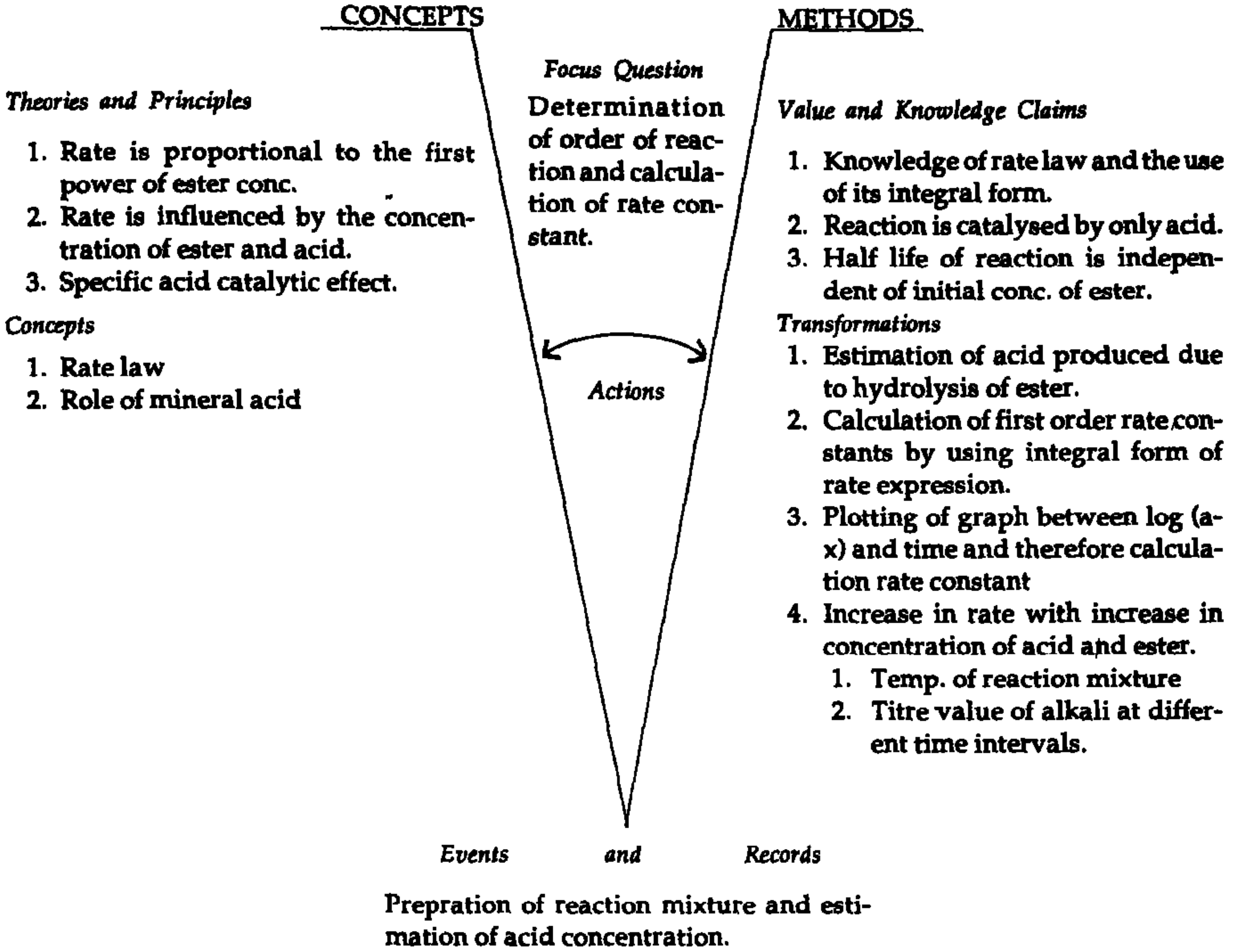


Figure 1 : The themes of V-Diagramming



CONCEPTS

METHODS

Focus Question

Determination of order of reaction and calculation of rate constant.

Theories and Principles

1. Rate is proportional to the first power of ester conc.
2. Rate is influenced by the concentration of ester and acid.
3. Specific acid catalytic effect.

Concepts

1. Rate law
2. Role of mineral acid

Value and Knowledge Claims

1. Knowledge of rate law and the use of its integral form.
2. Reaction is catalysed by only acid.
3. Half life of reaction is independent of initial conc. of ester.

Transformations

1. Estimation of acid produced due to hydrolysis of ester.
2. Calculation of first order rate constants by using integral form of rate expression.
3. Plotting of graph between log (a-x) and time and therefore calculation rate constant
4. Increase in rate with increase in concentration of acid and ester.
   1. Temp. of reaction mixture
   2. Titre value of alkali at different time intervals.

Actions

Events and Records

Prepration of reaction mixture and estimation of acid concentration.

Figure 2: V-diagram of Kinetics of Hydrolysis of ester

ACADEMIC FREEDOM

(Contd. from Page 8)

from a climate of fear, discrimination, vindictiveness and exploitation. Peter Drucker has rightly stated that members of an organisation should have an environment to develop a sense of self-responsibility which is the core quality of the fully matured, fully functioning and self-actualising individual. An environment of freedom, transparency, openness, flexibility and accessibility would ensure such environment;

(5) Finally, we will have to take education to the community. Autonomy has an instrumental value in as much as it must make education pro-people in all respects to raise the quality of their life. We should make a built in provision to develop a symbiotic relationship between education and society. Such mutuality will reinforce autonomy with accountability and strengthen both — education and the community.

The path of autonomy and freedom demands, on the part of its pursuer, qualities of character — courage, industry and humility. It is more difficult in the contemporary climate of permissiveness, moral degeneration, self-promotion at any cost, intrigue and manipulation. I happened to come across the following prayer carved on the portals of a college in a small town in the USA during my visit in September 1995. It is pertinent to recite it so as to muster one's inner powers to operate in a morally chilling climate and rededicate one's self to the cause of freedom, particularly academic freedom.

"From the cowardice which shrinks from
new truths,
From the laxness which is content
with half truths,
From the arrogance which thinks
that it knows all truths,
O God of TRUTH, deliver us."

MY CHOICE

Viney Kirpal*

I have read a number of books — fiction as well as non — fiction — in the last two years but I can think of only one among them as 'outstanding'. In my view, an outstanding work is one to which I would like to return repeatedly because every time I read it, it gives me a new insight, as with the best works of Shakespeare (Canon-busting, notwithstanding!). My choice is Stephen R. Covey's book *The Seven Habits of Highly Effective People,* first published in 1989 (Fireside). Subtitled, "Restoring the Character Ethic", the book is extremely relevant to us in the India of post-Liberalization and of changing 'values' in all areas of our life — personal as well as professional. The book does not merely give information on how to handle our lives; it imparts wisdom.

Covey spends a lot of time in defining five basic concepts. One of them is "Effective People", the second is the "Character Ethic," the third is the "Personality Ethic", the fourth is "Paradigm Shift" and the fifth is the "P/PC Balance". According to Covey, outwardly successful people are not effective people. Frequently, they are struggling for a deep inner personal congruency and effectiveness and for healthy, growing relationships with others. The book is a product of a review of 200 years of success literature. Covey is also Chairman of the Covey Leadership Center, and the nonprofit Institute for Principle-Centred Leadership. He has a Harvard MBA and is an adjunct Professor at the Marriot School of Management, Brigham Young University in the U.S.A. In the course of his over 30 years of working with people in family, business, university and marriage settings, he has met many individuals who are in search of a centre. There are tremendously successful professionals who feel that their personal and family life is zero. "I don't know my wife and children anymore. I'm not even sure I know myself and what's really important to me," is just a typical example of the way some of them feel despite achieving great professional success. Covey then goes on to define 'Effective People' as those who have character.

Covey explains his concept of the Character Ethic thus. He tells us how, as he read through two centuries of literature on success, he began to feel the stark contrast with the success literature of the past 50 years and found it extremely superficial. It is filled with social image consciousness, techniques and quick fixes which appeared to solve problems temporarily but actually left the problems festering within. As against that almost all the literature in the first 150 years or so has focused on what he calls the *Character Ethic.* It comprises values like integrity, humility, fidelity, temperature, courage, justice, patience, industry, simplicity, modesty, and the Golden rule, and is, in Covey's view the foundation of true success.

What the world has been giving us since the first World War is only the *Personality Ethic.* According to the *Personality Ethic,* success is a function of personality, public image, skills and techniques to smoothen the processes of human interaction. The Personality Ethic has two paths, one is the path of human public relations techniques; the other is a positive mental attitude. Examples of some of the above valid maxims it upholds are: "Smiling wins more friends than frowning", "Whatever the mind of man can conceive and believe it can achieve". But some others are clearly manipulative, even encouraging people to use techniques to get others to like them, for example, taking interest in the hobbies of others to get out of them what you want. Some of this literature has categorized character as an ingredient of success, but the tendency is to compartmentalize it rather than recognize it as foundational. Covey does not say that personality growth, communication skill training are not useful but he rather calls them secondary traits. As he puts it "If I try to use human influence strategies and tactics of how to get other people to do what I want, to work better, ... while my character is fundamentally flawed, marked by duplicity and insincerity — then, in the long run I cannot be successful. My duplicity will breed distrust, and everything I do — even using so-called good human relations techniques — will be perceived as manipulative ... Only basic goodness gives life to technique", (21). Thus, he re-installs the Character Ethic into its earlier position of primacy. The seven habits of highly effective people, that Covey centralizes in the book are therefore those which embody the basic principles of the Character Ethic: "These habits are basic; they are primary" (23). They are based on solid principles, and represent a principle-centred approach to becoming effective.

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But it's not easy to understand or grasp these seven habits unless we are willing to change our basic perceptions about life, about others. Perceptions form the lens with which we see the world. It is important to look at the lens and at the world as we see it. The world is not only interpreted by the lens we wear but also shapes the lens. Thus, we might easily change our behaviour, and our attitudes, but changing the lens through which we perceive the world is very difficult. It calls for a *Paradigm Shift*. A most unusual example explains the concept of a Paradigm Shift. Covey tells us of how one Sunday morning on a Subway in New York, when people were sitting quietly a man and his children suddenly entered the carriage. With their entry, suddenly the whole climate got changed. The children were noisy and yelled back and forth, threw things and even grabbed people's papers. Yet the man did nothing. After plenty of restraint, Covey turned to the man and said, "Sir, your children are really disturbing a lot of people. I wonder if you couldn't control them a little more?" The man lifted his gaze as if he had become conscious of the situation for the first time and explained softly that they had just come from the hospital where their mother died about an hour ago. "I don't know what to think", the man told him, "and I guess they don't know how to handle it either" (31). Immediately, there was a paradigm Shift, in him, says Covey. Suddenly "I *saw* things differently" and because he saw them differently, he thought, felt and behaved differently. In place of irritation, he now felt sympathy and compassion. Everything had changed in an instant. Likewise, while labouring at the *Personality Ethic*, may enable us to change our attitudes and behaviours in two weeks or even two years, but if we want to make quantum changes in our lives, then we need to work and change our basic paradigms.

The Seven Habits are habits of *effectiveness* because they became the basis of a person's character, creating "an empowering centre of correct maps" from which an individual can effectively solve problems, maximize opportunities and experience a spiral of growth. They are also habits of effectiveness because they are based on a paradigm of effectiveness that is in harmony with a natural law. Covey calls it the "P/PC Balance", which many people break themselves against. What is "P/PC balance"? He uses Aesop's famous fable about the goose that laid the golden eggs to explain it. 'P' stands for *production* of desired results, the golden eggs. 'PC' stands for *production capability*, the ability or asset to produce the golden eggs. Most of us, in our haste to achieve short-term results, often ruin a prized physical asset (a car, a computer, our body, our environment) or a financial asset (living beyond our means) or a human asset. When two people in marriage are more concerned about getting the golden eggs, the benefits, than preserving the relationship that makes them possible, they often become "insensitive and inconsiderate, neglecting the little kindnesses and courtesies so important to a deep relationship" (55). This also applies to a parent's relationship with a child. Many parents get their children to do what they want by yelling and intimidating them. Alternatively, some pamper them completely and give in to them all the time. When they grow up, such children lack an internal sense of standards or expectations, lack a personal commitment to being disciplined. Thus, whether the PC is starved or overindulged, a balance is lacking and production suffers. Covey's thesis has many implications for us in almost all areas of our personal and public life, including the work situation.

This, and many others are the words of wisdom that Covey shares with us in a most persuasive style. Among his Seven Habits, the Four that have impressed me most are: Be Proactive; Begin with the End in Mind; Put First Things First and Think Win/Win, although the remaining three are not less significant. (These are: 'Seek First to Understand, then to be Understood'; 'Synergize', and 'Sharpen the Saw'). 'Being Proactive' means exercising the freedom to choose. It is the opposite of being reactive. "There's nothing I can do", "He makes me so mad", "If only" are reactive statements. They suggest a life where the individual feels victimized and out of control. But being proactive means to take responsibility for one's actions and to take steps which will free one from constraints. Even in the life-threatening situation of a Concentration Camp and daily faced with the possibility of death, Victor Frankl, the famous psychologist *chose* not to go down under, by imagining he was lecturing to a large class of admiring students. That preserved his sanity and prevented him from feeling depressed or oppressed. This was proactive behaviour. In our lives, we have many opportunities to behave in a proactive way but we lose them by behaving in a reactive manner.

'Begin with the End in Mind' is about the ultimate mission statement each one of us should make. Do we want to lead a healthy life? Or do we wish to lead a happy family life? Or is it do both of these and also to do well professionally ? The ultimate end of man is death and the most solid principles can be enunciated only if we remember this fact. A man died, says Covey, and at the funeral someone asked, "How much did he leave?", and his friend responded "He left it all". Thus, here Covey is philosophical and as an Indian I could relate to the precept very easily because his notion is very similar to the wisdom expressed in the Vedas.

'Put First Things First' is about Time management. But Covey once again turns the concept upside down. In his view, time management is not the minute-by-minute schedule that we are expected to maintain in life on the fast track. It is rather, spending 90% of our time doing things which are not urgent but important. These, according to him, are in Quadrant II.

The Time Management Matrix

	Urgent	*Not Urgent*
	I	II
	Activities	*Activities*
Important	Crises Pressing problems Deadline-driven projects	Prevention, PC activities Relationship building Recognizing new opportunities Planning, recreation
	III	IV
	Activities	*Activities*
Not Important	Interruptions, some calls Some mail, some reports Some meetings Proximate, pressing matters	Trivia, busy-work Some mail Some phone calls Time wasters Pleasant activities

If we spent more time on these activities, there may be little need to spend it on the activities on Quadrants I, III and IV. For example, if we have excellent relations with others, crises in family and professional relationships can be almost eliminated. Again, if we plan our activities properly and effectively, there need be no deadline-driven projects. Proper recreation would ensure a relaxed mind and take care of the PC or production capability in us.

'Think Win-Win' is that beautiful concept which shows us how in life there should be no losers. Even the party that gives in, may be allowed to experience a sense of having won. But this calls for a Paradigm shift because we divide the world into winners and losers generally; because we wish to win every time. Thus, if while I focus on my Win, I don't even consider your point of view, there can be no productive relationship. In the long run, if it isn't a Win for any two parties whether in a marriage or at the work place (or anywhere else), then both lose in the long run. It explains why wars tend to be long drawn out, why personal relationship crises often cannot be resolved except in a divorce. That makes Win/Win the only alternative, as human beings are finally interdependent, and interdependence is superior to independence where an individual prefers to go it alone unmindful of what others want or expect. Character is the foundation of Win/Win and everything builds on that foundation. Win/Win needs integrity, maturity, the Abundance Mentality — the belief "that there is plenty out there for everybody". In that belief lies magnanimity, tolerance and wisdom. If we closely consider Covey's suggestion of thinking Win/Win always, there need be no wars, no need for nuclear weaponry, no hunger, no covetousness, indeed, no oppression of man, woman or child.

The Seven Habits of Highly Effective People has left a lasting mark on me. Whenever I read it, I learn a little more about how ineffective I still am. However, every reading also gives me the hope that I can become a better, more "effective" human being in the years to come.

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communication should, however, be brief and to the point.

Democracy in India

Hon'ble Mr. Justice A.M. Ahmadi, Chief Justice of India, delivered the Convocation Address at Twelfth Convocation of the Kakatia University, Warangal (A.P.). He said, "Public confidence in our national leaders and democratic institutions in general, is at an all-time low. Eminent scholars and political thinkers have suggested various radical measures to tide over the crisis that our democracy is gripped by. The general feeling seems to be that our democratic institutions are becoming unresponsive to the needs of people and are therefore in danger of becoming unrepresentative symbols of representation." Excerpts

India is, literally speaking, "The World's largest democracy" and as it prepares to face the Eleventh General Elections, the institution of democracy in India requires a fresh appraisal. Each of the ten General Elections that have been held so far have been described as 'momentous' and 'epoch-making'. The newspapers and magazines that have followed the Eleventh General Elections so far have stuck to tradition by employing the same adjectives to this year's Lok Sabha polls as well. However, few would have cause to disagree with the media on this score for the results of this year's elections will indeed have a profound effect upon our nation's polity and the course that its future will adopt over the next few years.

Those of you who have an interest in history can justify such adjectives on the ground that the Government which emerges from the hustings will, if it can run the distance, lead India into the dawn of a new century and hence a new era. However, the reason why even those who are acclaimed as astute scholars on the subject of democracy in India justify the use of these adjectives is the range and gravity of social, economic and political problems that have surfaced, time and again, on the national arena in the past few years.

We are but halfway into this last decade of the twentieth century and already it has become one of the most tumultuous that independent India has experienced. The nineties have so far witnessed, to mention but a few significant events, the emotive Ayodhya incident and the riots that wrecked the nation in its aftermath, the introduction of the New Economic Policy amidst heated debate, the Securities Scam which sent shock waves from which our financial markets are yet to recover fully, the advent of Multinational Corporations and the consequent explosion in consumer goods, the easy availability of Satellite and Cable Television which is causing a rapid change in social mores, and more recently, the disclosures in the Hawala scandal which have shaken our entire political system. It would seem that there is not one aspect of Indian life — be it political, economic, or sociological — that has not been subjected to severe strain in these troubled times.

Viewed dispassionately, a General Election is a simple enough exercise, which allows people to either substitute or reconfirm their representatives in the House of Parliament. However, in actual terms, it connotes far more — with a fresh Parliament comes a fresh Government or at least a Government with a fresh agenda. And, after every General Election, the political and social agenda of the country undergoes radical changes. It is for this reason that the year of a General Election is traditionally, a time of introspection about our nation's ills for those who seriously follow the successes and pitfalls of Indian democracy. Some time ago, such an appraisal of our polity led a body of intellectuals to espouse the advantages of a Presidential system over our present Westminster form of Government. This time, however, the calls for radical reforms have been even more strident with some questioning whether the system of democracy as we have it in India is inherently faulty.

Before we seek to analyse the working of democracy in India, we must obtain a clear idea of what the theoretical concept of democracy postulates. If one were to trace the etymology of the word to its Greek parent, one would gather that it connotes "power of the people". A democratic form of Government has been described by Abraham Lincoln as Government "of the people, by the people and for the people". Unfortunately, however, there is a great amount of controversy over the exact connotation of democracy and its characteristics in today's world. As stated by the political scientist, Orwell:

> *"In the case of a word like democracy, not only is there no agreed definition, but the attempt to make one is resisted from all*

> *sides ..... The defenders of any kind of regime claim that it is a democracy and fear that they might have to stop using the word if it were tied down to any one meaning".*

According to a distinguished Professor of Columbia University, in our times, democracy as an ideal form of Government is taken for granted. We must not forget that democracy has been described as the most difficult of all forms of Government and historically, many infant democracies have proven to be prone to failure. In ancient Greece, where they were conceived, they had short lives; in their medieval forms, again, they did not enjoy long tenures and even in the modern world, despite the universal respect that democracy as a form of Government enjoys, there are very few long-standing democracies. The recent history of most nations in Latin America would bear out the truth of this statement as would that of countries in Africa. Even twentieth Century Europe has had its share of discontinuous democracies in Italy, Germany, Austria, Spain, Portugal and Greece.

Viewed against this backdrop, the fact that democracy in India has survived for all of half a century is indeed creditable. The credit for its stability lies in the wisdom of its people. At the time India attained Independence and adopted its new Constitution, many people were pessimistic of its chances of success as they believed that our Constitution was seeking to transplant Western notions of government within the Indian subcontinent. With the benefit of hindsight, one can state that part of the reason why this grand experiment has been successful is because our early statesmen and leaders took great pains to develop an indigenous model of government.

However, while applauding the survival of democracy in India, one must be mindful of the severe afflictions that have caused a stranglehold over it and which in our times, threaten to throttle its existence.

As a result of the many upheavals that have occurred in the nation in recent times, there is a great deal of apprehension amongst the general public over the efficacy of the form of government that we have. Public confidence in our national leaders and democratic institutions in general, is at an all-time low. Eminent scholars and political thinkers have suggested various radical measures to tide over the crisis that our democracy is gripped by. The general feeling seems to be that our democratic institutions are becoming unresponsive to the needs of people and are therefore in danger of becoming unrepresentative symbols of representation. There have been many manifestations of this general feeling. In recent times, when the people found that they could not obtain redress for their grievances through the usual process of approaching their representatives in Parliament or by seeking relief through the Executive, they have started moving the courts to enforce the rights guaranteed to them under the Constitution. This is the real reason behind what has been called 'resurgence of judicial activism'. These developments show that the ordinary citizen of today is disenchanted with the democratic process. And such an attitude is dangerous for, historically, it is these feelings of repression that have formed the bedrock of violent revolutions.

Indeed, there is a need for a revolution in our democratic process but this revolution can only be heralded through peaceful and democratic means. The ordinary citizen of today's India feels alienated from the events occurring on the national arena. When major policy decisions are taken and implemented, they are not preceded by sufficient ground-work making the ordinary people, particularly the rural folk, aware of the benefits and repercussions, if any, of such policy decisions. Since they are the ones who are most affected by the ultimate results of these reforms, they are fully justified in feeling alienated. It is sad that such feelings have been exploited by others for narrow gains regardless of the merits of the reforms. This would not happen if there is sufficient awareness preceding the implementation of such policies. This points to the malaise that afflicts the roots of our democracy — its inability to ensure continuous participation of the peolpe in the democratic process. In India, the people, who are the true sovereign, are mostly forgotten after they have exercised their franchise and regain importance only in the next election year. Thereafter, once a new Government is elected to power, the manner in which it functions for the next four years is characterised by little regard for the needs of the people, particularly the poor and the down-trodden sections of the citizenry.

Being aware of such a contin-

Correction

While reporting the convocation address delivered by Dr (Mrs) Najma Heptulla, Deputy Chairperson, Rajya Sabha at Dr. Bhimrao Ambedkar University, Agra (*University News*, 16 September, 1996), she has been erroneously referred to as "He", and "the then Deputy Chairman, Rajya Sabha".

The error is deeply regretted.

gency, our founding Fathers had envisaged the setting up of a strong village Panchayati Raj System and other forms of local self-government which would allow the people to continuously participate in the democratic process. However, despite the Constitutional amendments to further this objective of achieving a stable Panchayati Raj System, effective measures have yet to be initiated towards this end. Even though 30% seats have been reserved for women, the women representatives are not allowed to effectively participate in the democratic process. So also, the Scheduled Caste and Scheduled Tribe representatives are not allowed to share power. Unless there is an attitudinal change and this vast segment of the citizenry is allowed effective participation in the democratic process and is permitted to share power, democracy will function in a truncated form only. Those who advocate electoral reforms must focus upon this aspect for if our form of Government is truly to be that of the people; then their involvement cannot be reduced to a one-time affair, recurring at intervals of five years, without their representatives playing an effective role in nation-building.

There are many who underestimate the average Indian voter on account of his illiteracy and poverty. They would benefit from the words of Thomas Jefferson:

> *"I know of no safe depository of the ultimate power of the society but the people themselves, and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion".*

Another facet of our political life that is extremely disturbing is the fall in values of our elected representatives. Of the many factors that are responsible for this phenomenon, the two that stand out are (i) the fall in the quality of leadership and (ii) the role of muscle and money power in elections. This has resulted in people of the right stamp withdrawing from public life, thereby leaving the field open to those who believe in the culture of winning elections by any means. Unfortunately, our youth too has been indoctrinised on caste/communal and ethnic considerations because political parties have penetrated student unions and the same culture of muscle and money power is found all-pervading in most of the college elections barring a few. This has truncated the growth of the right type of value-based leadership in our next generation also. One is also witness to a sort of apathy amongst the educated intelligentsia in exercising their right to vote because they are very often confronted with a situation where they do not find any candidate in whose favour they would like to cast their votes. An eminent scholar has correctly described it as a vicious circle — persons of integrity and talent will not enter public life because of the filth and stench; and yet public life cannot be cleaned unless persons of talent and integrity enter it. I can only hope that some of those amongst you will show the strength of character required to make the decision of entering public life with an intent to upholding the noble values that have been instilled in you in this serene academic environment. It is regrettable that the educated masses of our country have earned the dubious description of being least inclined towards a democratic way of life for their consistent reluctance to participate in polls. George Bernard Shaw had said that of all the negative traints that humans possess, indifference is the most inhumane of them all. Those best suited to improve our national character can ill-afford to be complacent or indifferent, or what is worse, negligent of their duties as citizens. You will do well to remember that our Constitution carries a chapter on Fundamental Duties and I would commend you to carefully read the same. The educated have a greater duty to participate in the election process so that people of the right stamp contest elections and get elected. In these pressing times, adult suffrage amongst the educated is more a priority than a privilege.

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002

The University Grants Commission is inviting nominations of teachers from universities and affiliated colleges for the award of Commonwealth Fellowships for the year 1997. A fellowship is tenable for either six or twelve months in any academic subject including medicine and dentistry. A candidate for fellowship should normally hold a doctorate and have at least two years experience as staff member of a university Fellowships are primarily intended for younger established teachers (not for the senior members of the department) who require a programme of study in depth to enhance their teaching and/or research experience or, in the case of medicine and dentistry, clinical skills relevant to the academic plans of the nominating institution. These awards are not available for study for a higher degree. Candidates for Fellowships must have completed their doctorate (or relevant postgraduate qualifications) no less than five and no more than ten years by the date of taking up an award) Fellowships will not be offered to candidates over the age of 50. The applications should reach the U.G.C Office by **10th October, 1996.**

— davp 823 (10) 96

The World's Youth 1996

	POPULATION			EDUCATION				MARRIAGE & FERTILITY			HEALTH			TEEN POPULATION, AGES 15-19								
	Ages 10-24 (millions)		Ages 10-24 (% of total)	% Enrolled in Secondary School 1980		% Enrolled in Secondary School Latest Year		Average Age at First Marriage	Total Fertility Rate (TFR)	% of TFR Contributed by Ages 15-19	% Births Attended by Trained Personnel	% of Adult Population Infected with HIV	AIDS Education Included in School Curriculum	Population (millions)	% Illiterate		% Currently Married (females)	% Single Sexually Active (females)	% Giving Birth by Age 20[a]	% Births Attended by Trained Personnel	% Using Contraception (females)	
	1996	2025	1996	Male	Female	Male	Female	All Women			All Women	1994	1993	1996	Male	Female					Married	Single Sexually Active
WORLD	1,601	1,986	28	51	41	58	50	22	3.1	10	68	-	-	519	15	25	18	-	31	-	16	-
More Developed	243	215	21	85	87	92	95	25	1.6	9	99	-	-	80	-	-	6	-	-	-	-	-
Less Developed	1,358	1,771	29	43	29	52	42	21	3.4	9	62	-	-	439	15	26	21	-	33	-	15	-
AFRICA	237	459	32	26	15	36	30	21	5.8	12	37	-	-	79	-	-	25	-	-	-	-	-
Sub-Saharan Africa	194	408	32	20	10	26	21	20	6.1	-	37	-	-	64	-	-	29	-	-	-	-	-
Northern Africa	53	69	32	45	28	61	52	23	4.4	7	42	-	-	18	30	49	12	-	23	48	13	-
Western Africa	68	147	31	24	12	28	20	19	6.3	13	34	-	-	22	-	-	36	13	56	32	5	34
Eastern Africa	75	159	32	11	7	16	12	20	6.4	12	36	-	-	25	29	41	29	-	-	-	-	-
Middle Africa	27	61	31	30	12	30	15	20	6.3	16	-	-	-	9	-	-	28	-	-	-	-	-
Southern Africa	15	23	31	-	-	67	79	26	4.2	9	-	-	-	5	*15*	*15*	6	-	-	-	-	-
ASIA	997	1,161	28	48	33	57	45	22	2.9	7	65	-	-	319	15	27	20	-	29	-	14	-
Western Asia	52	83	30	49	31	63	46	23	4.3	7	68	-	-	17	-	-	14	-	-	-	-	-
South-Central Asia	429	568	30	36	18	54	36	20	3.8	9	33	-	-	140	*27*	*48*	35	-	48	31	10	-
Bangladesh	41.5	51.8	34	23	6	25	13	18.0	3.4	15	10	z	No	13.9	*57*	*71*	48	-	66	9	25	-
Bhutan	0.5	0.9	30	3	1	8	2	-	6.2	5	7	z	No	0.2	-	-	-	-	-	-	-	-
India	284.2	340.4	30	39	20	59	38	20.0	3.4	9	34	0.4	No	92.7	20	44	38	-	49	34	7	-
Nepal	7.2	12.3	32	33	9	46	23	*17.9*	5.8	10	7	0.1	No	2.4	*52*	*83*	*50*	-	-	-	1	-
Pakistan	44.6	85.4	31	20	8	28	13	21.7	5.6	5	19	0.1	No	14.3	*56*	*74*	24	-	31	17	3	-
Sri Lanka	5.5	5.3	29	53	57	71	78	*24.4*	2.3	7	87	0.1	Yes	1.9	*9*	*10*	7	-	16	82	20	-
Southeast Asia	152	173	31	40	35	48	44	22	3.3	7	58	-	-	51	4	5	13	-	27	36	28	-
East Asia	364	338	25	59	45	64	57	23	1.8	4	95	-	-	111	3	8	4	-	8	-	14	-
OCEANIA	7	9	24	63	64	70	71	25	2.5	6	87	-	-	2	-	-	6	-	-	-	-	-
NORTH AMERICA	60	70	20	88	90	99	98	25	2.0	15	99	-	-	20	-	-	4	-	19	-	-	71
LATIN AMERICA	140	166	30	41	43	-	-	22	3.1	13	82	-	-	49	9	7	15	6	33	-	37	-
Central America	42	48	32	45	42	51	52	21	3.4	13	69	-	-	14	4	6	19	5	38	-	28	-
Caribbean	10	11	28	-	-	46	52	21	2.8	14	80	-	-	3	25	21	18	-	-	-	-	-
South America	96	107	30	38	42	-	-	23	3.0	13	86	-	-	33	10	7	13	7	31	-	43	29*
EUROPE	152	121	21	-	-	89	94	24	1.5	8	-	-	-	50	-	-	7	-	-	-	-	-
Northern Europe	18	17	19	85	89	95	99	26	1.8	7	100	-	-	6	-	-	2	-	-	-	-	-
Western Europe	33	28	18	89	90	104	104	26	1.5	4	97	-	-	11	-	-	2	-	-	-	-	-
Eastern Europe	70	55	23	-	-	80	89	22	1.5	12	-	-	-	24	-	-	12	-	-	-	-	-
Southern Europe	30	21	21	75	74	88	93	25	1.4	6	-	-	-	10	1	1	6	-	-	-	-	-

LEGEND

A figure in italics indicates data or estimates over 10 years old ranging from 1980 to 1985; for HIV prevalence data, italics indicate data over four years old.

- data unavailable or inapplicable

z statistic rounds to zero

* Data are based on single teens who have ever had intercourse rather than those reporting intercourse in the last four weeks

a among women currently ages 20-24.

DEFINITIONS

* **The percent enrolled in secondary school** is the ratio of the total number enrolled in secondary school to the applicable age group, or the gross enrollment ratio.

* **The total fertility rate (TFR)** is the average number of children that would be born to a woman during her lifetime assuming the age-specific birth rates of a given year.

* **Births attended by trained personnel** are births attended by a physician, nurse, or trained midwife; definitions of medical personnel vary from country to country and some data may include traditional birth attendants

* **Percent of adult population infected with HIV** are provisional estimates supplied by WHO and based on official country estimates when available. When not available, WHO figures are based on HIV sero-prevalence studies, reported AIDS cases, population size and structure, and predominant modes of transmission.

* **Percent using contraception** is the percent of married women ages 15-19/sexually active, single women 15-19 who are currently practicing a form of family planning. Single, sexually active teens are those who reported intercourse within four weeks prior to the survey.

Source: Population Reference Bureau, Inc. 1875 Connecticut Avenue, NW Suite 520, Washington, DC 20009-5728, USA

Anna Varsity - Nagoya Instt. Exchange Programme

The Anna University is reported to have recently signed a Memorandum of Understanding (MoU) with the Nagoya Institute of Technology (NIT), one of the leading technical institutions in Japan for promoting academic and research activities. The two institutions would exchange academic materials, information, students, research scholars and faculty members.

Five students, including two research scholars, of the University had already been selected for a 10-month long stay at the Nagoya Institute, Dr. R.M. Vasagam, Vice-Chancellor, Anna University said. They were from the departments of ceramic technology, chemical engineering, structural engineering, instrumentation and crystal growth.

Dr. Vasagam, said a detailed plan would be chalked out jointly by both the institutions to implement the activities agreed upon. On resources, he said the partners would seek financial support from various agencies in their respective countries.

The MoU was for a period of five years and would be renewed automatically unless either of the institutions decided against it, the Vice-Chancellor said. He expressed the hope that the partnership would be an everlasting one. Currently some faculty members and three students from the Anna University are working at NIT.

To utilise the partnership better, the University would promote learning Japanese language in the campus. It would also help many as the metro and the country were poised to have a greater presence of Japanese companies. The MoU would also help in upgrading the infrastructure facilities of the University. Some very important equipment was expected. The software industry and modern construction in the country also would benefit.

Mr. Yoshida Hirotomo, President of the Institute said the NIT was strong in the fields of civil, electrical, systems and architectural engineering. The partnership with Anna University represented a great combination between India and Japan in the fields of science and technology.

Dr. Kunthala Jayaraman, Head of the Biotechnology Department said young students who did not have any rigid mindset would be the ideal candidates for the exchange programme. Students would be the biggest beneficiaries of the tie-up, she said adding that the opportunities would be rotated among all the disciplines. She said the students from the University would have access to the latest technology at Nagoya.

Dr. Vasagam said both the institutions had a long and reputed heritage. While the Nagoya Institute was 90 years old, the Anna University had a history of 200 years. The partnership would foster the relations between India and Japan.

Improving Legal Studies & Research

Justice A. M. Ahmadi, Chief Justice of India, expressed deep concern over the falling standards of legal education in the country even as the law colleges and institutions were mushrooming. He said that despite warning over the years from various quarters including the Law Commission nothing had been done to check the fall in the standard of legal education in the country. The Chief Justice was addressing a function after laying foundation stone for the proposed National Academy of Legal Studies and Research at Shamirpet near Hyderabad recently.

He hoped that the institution like this academy would be able to lift the standards of legal education in the country to the international level and ensure that India did not remain isolated in the field of law in the context of increasing globalisation and internationalisation.

He said the academy would be of one of the six institutions of international-level to be set up in various states to meet the new challenges and requirements of training the coming generation of lawyers. He said services of the best legal brains and teachers would be provided at this academy.

He said emphasis should be laid on ensuring social justice through the new improvements in the system of justice as well as the legal education. So far this system had not been able to achieve the goal of the social justice. He said that the national academy would benefit from the collaboration with similar institutions of America and other countries.

He said as an attempt to make the legal education cost-effective and within reach of all, the Supreme Court has launched a plan to computerise all cases from 1958 to 1994 and provide them on CD-ROMs. He said the new lawyers who could afford to have their own libraries could have these on CD-ROMs.

The Chief Justice said that the International Centre for the Alternate Dispute Resolution at Delhi would start functioning from this year. The Government had released Rs 12 crore for this project. A branch of this project would also be set up at Hyderabad for which the State Government had released Rs 1 crore out of its commitment of Rs 2 crore.

Justice Ahmadi also said that under another innovative experiment of court management an alternative dispute resolution system would be adopted and he hoped the joint effort of the two would bring about a dramatic result.

The Government of Andhra Pradesh has allotted a 55 acres of land for the National Academy at Shamirpet and it will be managed by a board of governors headed by the Chief Justice of Andhra Pradesh High Court and it will have a number of judges and eminent persons. The Government has already given it the recognition of a deemed university.

Academic Institutions and National Integration

Mr C. M. Ibrahim, Union Information and Broadcasting Minister, stressed the role of educational institutions in fostering national integration. He said that communal harmony was an essential prerequisite for the all round development of the country. He was addressing a minorities educational conference at the Sunni Inter College in Lucknow recently. He said that the educational institutions had a positive role to play in bringing about national unity, adding that all religions preached unity and brotherhood.

The Information and Broadcasting Minister said that the educational institutions possessed the wherewithal to inculcate moral values in the youth which, owing to the combination of several factors, had become wayward. Mr Ibrahim said that it was rather unfortunate that the youth had developed destructive tendencies, and added that the institutions could bring about a change in their behavioural pattern.

Mr. Ibrahim said that along with the religious education, the minorities would have to pay more attention towards modern education.

The Minister said that unless the minorities shed off their ambivalent approach towards modern and technical education, their socio-economic development was not possible.

The conference was organised by the Federation of Minorities Educational Institutions.

Anna Varsity Convocation

"The role of science and technology in future will be one of not conquering nature but living with it", said Prof. Hirotomo Yoshida, President, Nagoya Institute of Technology, Japan. He was delivering the 17th Convocation address at the Anna University in Madras recently. He said thanks to radical scientific and technological development, mankind had no doubt produced a variety of industrial products, besides constructing social infrastructure. However, there also appeared problems of global environment and the social climate of alienation of human beings.

For sustainable development of mankind, conservation of the global environment, symbiosis with other living things and solutions to problems of resources and energy were crucial. The only tool available for this task, said Prof. Yoshida, was science and technology which mankind alone possessed.

Tracing the long history of communication between Japan and India since ancient times, Prof. Yoshida said Japan had learnt many things from India. He hoped that the inter-university agreement signed between the Anna University and the Nagoya Institute recently would intensify the communication link between the two countries and make a significant contribution to the world in the areas of science and technology.

The Vice-Chancellor, Prof. R.M. Vasagam, in his welcome address, said the university had a strong tradition of developing the intellectual capabilities and leadership qualities of students.

Funds were forthcoming to the university from various sources for carrying out innovative and socially relevant projects. A centre for Disaster Management and Mitigation was being set up with the International Decade for Natural Disaster Reduction (IDNDR) programme of the United Nations. New initiatives for a solar cell training-cum-development centre and enhancing the pace of activities related to ocean data management, ocean mining and ocean thermal energy programmes were to fructify soon.

The Vice-Chancellor said as many as 671 research papers were published by the university's faculty members in various journals and presented in conferences and symposia, eight major books were brought out and 14 members participated in international conferences for presenting papers through the University.

Initiatives were being pursued to have industry collaboration in the areas of sugar research and setting up a centre for automobile design, development and testing. A centre for software engineering and management, a centre for multi-media and animation and another for digital signal processing were being conceived with the help of State and Central Government agencies and industries.

The university had taken pioneering steps in implementing total quality management (TQM) in a focused manner. Internal quality assurance cells had been set up to implement TQM. Five of the University's programmes in Civil, Mechanical, Electrical, Computer Science and Chemical Engineering had been given the highest rating of 'A' grade by the AICTE National Board of Accreditation, he added.

The Governor and the Chancellor of the University, Dr. M. Channa Reddy, presented the honorary Degree of Doctor of Science to Prof. Hirotomo Yoshida. He also distributed degrees in person to 860 students, including 183 women. About 800 candidates received their degrees in absentia. The Education Minister and Pro-Chancellor, Mr. K. Anbazhagan, also participated in the convocation.

New Courses at BRAOU

Dr. B.R. Ambedkar Open University has introduced two new courses — Post-Graduate Diploma in "Environmental Studies" and Certificate Programme in "Mushroom Cultivation". The courses were recently inaugurated by the Minister of Higher Education, Mr. Basheeruddin Babu Khan. The Minister released Volume I of *Ecology, Environment and Development* for Post-Graduate Diploma in Environmental Studies.

Speaking on the occasion, Mr. Basheeruddin Babu Khan, commended Dr. B.R. Ambedkar Open University for starting these special programmes which were "Unique" and useful to one and all in the society.

Mr. V.P. Jauhari, Member Secretary, A.P. Pollution Control Board released Volume II of *Environmental Awareness and Health* for Post-Graduate Diploma in Environmental Studies, while Mr. K.R. Kishore, Commissioner for Agriculture released Volume of *Biology of Mushrooms* for Certificate Programme in Mushroom Cultivation.

Speaking on the Importance of Environment Mr. Jauhari highlighted the need for protection of environment by each and every citizen of the country as environment was being pollutted by several gases, industrial effluents, and household garbage.

Mr. A.R. Sukmar, Director of Horticulture, explained various aspects of Mushroom Cultivation and also various sources of financial assistance to the farmers ranging from Rs. 20,000 to Rs. 50 crores depending upon the size of the farm and varieties of mushrooms.

Mr. S. Anwar, Vice-Chancellor I/c, who presided, stressed the need for the protection of Environment. He thanked all the resource persons for bringing out such an important Awareness Programme on Mushroom Cultivation, which had potentiatities for employment and self-employment. The University could succeed in training the people in all aspects of Mushroom Cultivation and if they could establish themselves as growers, the objective of the University would be fulfilled, he said.

Literacy Awards 1996

The Indian Adult Education Association has announced the Nehru and Tagore Literacy Awards for 1996.

Shri Tarlok Singh, former Member of the Planning Commission, has been selected for the 30th Nehru Literacy Award for his outstanding contribution in planning, development and promotion of adult education for over five decades. He has worked extensively on the role of adult education in reducing poverty and ushering social change.

Shri Tarlok Singh was closely associated with Professor Gunnar Myrdal in Stockholm University, Sweden. His writings include *Poverty and Social Change; Towards an Integrated Society; and India's Development Experience.*

Prof. (Smt.) Kamalini H. Bhansali, former Vice-Chancellor, SNDT Women's University, Bombay has been selected for the 10th Tagore Literacy Award for her pioneering role for over three decades in promotion of continuing education and life-long learning for women. She has written comprehensively on adult and continuing education including the book *Sign-Posts For a Learning Society*.

Tamil Medium Engg. College

The Tamil Nadu Minister for Tamil Development, Dr. M. Tamizhkudimagan, announced that an engineering college with Tamil as medium of instruction would be started from the next academic year. He said that the books required for the first two years had been prepared and they would be put to use once the courses were launched. Initially about 90 students would be admitted in three batches. The college would either be affiliated to Anna University or Tamil University.

To better the prospects of students who had studied up to Plus Two in Tamil medium institutions and also for those interested, the Government had decided to have entrance examination to professional colleges in Tamil from next year.

The Government would popularise the language, literature and culture of Tamil in non-Tamil States in the country and abroad. As a first step it would urge various State Governments to institute a chair for Tamil in at least one of their universities. In the second, the Government would open centres to popularise Tamil in Mumbai and several places in the country and also in Mauritius and Australia. The Chief Minister, Mr. Karunanidhi, is reported to have written to the Prime Minister, Mr. H.D. Deve Gowda, to recognise Tamil as a classic language on par with Sanskrit, Greek, Persian and Arabic.

News from Agricultural Universities

Ram Dhan Singh Memorial Lecture

Dr. R.S. Paroda, Director General, Indian Council of Agricultural Research (ICAR) said that following the General Agreement on Trade & Tariffs (GATT), liberalization process and globalization of markets would call for competitiveness and efficiency in agricultural production, while facing new challenges on the ecological, climate, economic, equity, social justice, energy and employment fronts. He said that rapid growth in the industrial sector with enhanced urbanization tendencies and rising growth in income would further enhance food demands especially high-value foods, putting further pressure on scarce land, water and labour resources. To meet the ever-changing demands, he said, the research system must be made responsive to the existing and emerging issues at the national, regional and global levels. This would necessitate re-orientation of the institutional set up and the mandate envisaging the existing and up-coming research, teaching and extension needs. Dr. Paroda was delivering Rai Bahadur Ram Dhan Singh memorial lecture organised by Haryana Agricultural University, in Hisar recently.

He said there was need to reinforce all the research institutions for facing current and future problems of hunger, poverty, environmental degradation.

To ensure Indian agriculture to be globally competitive, Dr. Paroda said processing, product development, value addition, packaging, storage and marketing were of paramount importance. Speaking on GATT accord, he said it would undoubtedly help India to promote exports and bring much stiffer rule based system in the world trade. He said India had enough time before GATT accord came into force to modify the patent law and make it consistent with the provisions of the GATT agreement. He said under the World Trade Agreement massive investment and research efforts would be needed in post-harvest technology generation and management and greater attention to both sanitary and phyto-sanitary measures.

He further said that apart from traditional export items, value-added products had got great scope. Crop varieties which could give sizeable quantity of value-added products having high export potential need to be developed. Research efforts on keeping quality, handling, storage, packaging, transport and marketing had to be developed and well managed to meet the demand and also to be an effective competitor in the international markets.

Paying homages to Dr. Ram Dhan Singh he said the crop varieties, Dr. Singh had bred held more promise now than ever before both in view of household food and nutrition security as well as agricultural exports.

Wheat varieties bred by him were still the best quality wheats and globally competitive for wheat exports.

Dr. J.B. Chowdhury, Vice-Chancellor, while paying tributes to Ram Dhan Singh described him a scientist of proven honesty and dedication. He called upon the scientists to get inspiration from such persons as Ram Dhan Singh and contribute for the upliftment of the mankind. He also asked them to understand their responsibilities in the light of GATT agreement for getting benefits out of it.

The Vice-Chancellor also announced that the University proposed to set up a Rai Bahadur Ram Dhan Singh 'Chair' to improve crop breeds. He said that a trust named Rai Bahadur Ram Dhan Singh Memorial Trust would be constituted. Under the aegies of this trust the Ram Dhan Singh Chair would be created to pursue crop improvement research programmes. It was proposed to raise Rs 10 lakh through donations and contributions, he added.

Highlighting plant breeding research at CCS HAU, Dr. V.P. Singh, Director of Research, revealed that about 120 varieties of 14 crops had been developed. He said efforts were on to develop high yielding hybrids of 13 crops. Hybrids of bajra and guava had already been successfully developed, he added.

On this occasion, Dr. Paroda also laid foundation stone of a Central Laboratory to be built with a cost of 45 lacs in the university. He addressed the HAU faculty as chief guest of the Teachers' Day celebrations organised by the Haryana Agricultural University Teachers' Association (HAUTA). He, however, felt concerned over the outdated teaching methods and curricula, poor laboratory and physical facilities, academic in-breeding and lack of incentives to excellent teachers in most agricultural universities. He cited the schemes the ICAR, an apex organisation responsible for the conduct and coordination of agricultural research and education in the country, had undertaken to strengthen the SAU's and improving teaching standards and education system. He stressed the need for developing more inter-institutional linkages.

Current Trends in Librarianship

Dr. Har Swarup Singh, former High Commissioner of Maldives and VC, HAU, pleaded for a major change in Indian Education system. He said that the education that was being imparted by the Indian educational institutes was not national education but was based on the concepts borrowed from the west. So it did not reflect the element of Bhartiyata. Dr. Singh was speaking as a chief guest at the valedictory function of a four-week course on Current Trends in Librarianship at the Chaudhary Charan Singh Haryana Agricultural University (CCSHAU). The course was conducted by the Academy of Agricultural Research and Education Management (AAREM) established under a world bank project on Agricultural Human Resources Development sanctioned to the University.

Dr. Singh said that India possessed rich cultural heritage and social ethos but these aspects had not been incorporated in the syllabi. He also emphasised making education more practical oriented.

He said that the educational institutions must target upon the quality of education rather than commercialising it and called upon scientists of the university to look beyond the mandate of university and come to the rescue of their mural brethern in a big way.

Dr. J.B. Chowdhury, Vice-Chancellor, HAU, who presided, said that with the books becoming out of reach of the readers due to their high costs, the libraries had assumed added significance. Libraries were the only place where they could quench their thrust of acquiring more information and knowledge. He stressed the need for more automation of libraries in the changing scenario.

According to Mr. Prem Singh, University Librarian and the Course Director, the course was attended by the librarians from the states of Punjab, Haryana, Himachal Pradesh, Kerala, Uttar Pradesh, Manipur, Bihar, Orissa and Maharashtra.

We Congratulate......

1. **Dr. A. Abdul Kareem who has been appointed Vice-Chancellor of the Tamil Nadu Agricultural University (TNAU), Coimbatore.**
2. **Prof. U.B. Bhoite who has taken over as Vice-Chancellor of the Bharati Vidyapeeth (Deemed University), Pune.**
3. **Dr. D.M. Nanjundappa who has been nominated as the Chairman of the Indian Council of Social Science Research (ICSSR).**

News from UGC

Countrywide Classroom Programme

Between 1st to 7th October, 1996 the following schedule of telecast on higher education through INSAT-ID under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 1.00 p.m. to 2.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m

1.10.96

"The Art of Stamp Designing"

"Mangroves : Life on the Margin"

"Sea Me We"

3.10.96

"Monkeys at Tughlaqabad-Part II"

"Life from Lifeless"

"The Story of Rice"

5.10.96

"Superconductivity"

"Ocean Dynamics"

"Crocodiles"

6.10.96

"Kurja: Anthropoides Virgo (Rajasthani Love Bird)"

"Sports Acrobatics"

"The Week Ahead"

IInd Transmission
1.00 p.m. to 2.00 p.m.

1.10.96

"Understanding Cast Iron"
"The Medium is the Message"
"Living with Health: Weight Management"

2.10.96

"Basic Education"

"Hridyakunj—The Soul of Free Movement"

"Neem : The Green Goldmine"

3.10.96

"A Talk with Dr. Kasturirangan"

"Existentialism"

"Bridging the Calorie Gap"

4.10.96

"The Search for Primes"

"Human Rights"

"Perceptions of Gender"

"Air Pollution-I"

5.10.96

"The Carpet"

"Kerala Kala Kathakali"

"Polo-The Royal Sport-Part I"

6.10.96

No Telecast

7.10.96

"The Week Ahead"

"Winds of Change . Agricultural Credit"

"Reconstructive Surgery"

Hindi Telecast
प्रात: 6.00 से 6.30 बजे तक

2.10.96

"गांधी जी-पथ प्रदर्शक संस्मरण"

4.10.96

"साक्षरता"

7.10.96

"मोठ दाल-मरुक्षेत्रीय फसल"

Bashiruddin Ahmed Passes Away

Prof. Bashiruddin Ahmed, Vice-Chancellor of Jamia Millia Islamia, died on 7th September following a heart attack. He was 64.

Born on May 7, 1932, Prof. Ahmed obtained his higher education from Osmania University where he later taught from 1957 to 1964. He then joined the Centre for the Study of Developing Societies, Delhi, where he worked as Joint Director and Director. In 1989, he moved to the Centre for Policy Research as a Research Professor.

Prof. Ahmed also taught in the U.S. at the Universities of Michigan and Iowa, and was a Fellow at the University of Chicago.

A specialist in Indian politics, ethnic studies and international relations, the late Vice-Chancellor was Co-Director of an international research project focussing on the process of social and political change in five developed and developing countries including India. He is co-author of two books — *Citizen and Politics* and *Caste, Race and Politics.*

Condoling the death of the Vice-Chancellor, the Vice-President, Mr. K.R. Narayanan, said "the country has lost an eminent intellectual, academic and educationist and a prominent protagonist of our secular democracy".

In his condolence message, the Union Human Resource Development Minister, Mr. S.R. Bommai, remembered Prof. Ahmed as a renowned educationist. In his death, the nation has lost a teacher and a philosopher who contributed immensely to education, he added.

BOOK REVIEW

Understanding Systemic Linguistics

R.K. Singh*

Shivendra K. Verma. Systemic Grammar : Form and Function. Hyderabad, Booklinks Corporation, 1996. Pp. 73. Rs. 95/-

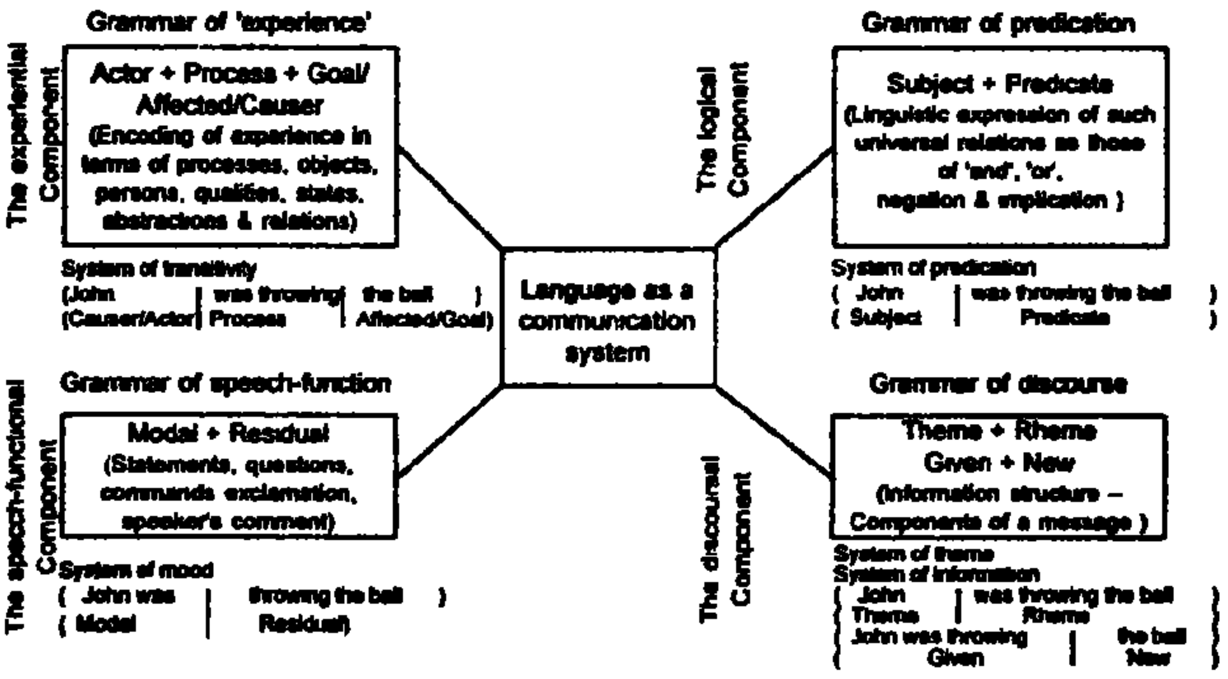
"*Systemic* is not a neologism for systematic. *System* has a special technical value in the totality of this grammar which has now come to be known as *Systemic Grammar*. The primary motivation for setting up this abstract concept of system lies in a socio-psychological approach to language ... The aim of systemic grammar is not only to characterize our actual use of language but also and importantly to predict what choices we can make." (Pp. 40-41)

Compiling several relevant but inter-related extracts to explain the theory, Shivendra K. Verma clarifies that language as a system of communication operates within the framework of the *experiential*, the *logical*, the *discoursal*, and the *speech-functional* or *interpersonal* components (p. 42), diagrammed as below.

The linguistic views system as a "relational abstractional term, representing grouping of 'related' items (p. 46). Though he makes no claim to originality, Shivendra K. Verma is not devoid of philosophical insight as he recreates/interprets the basic concepts of systemic linguistics as evolved by J.R. Firth and M.A.K. Halliday.

In fact, the book derives from some of his published papers with a view to helping postgraduate students to understand linguistics, its process of framing a generalization with maximum linguistic universals, for example, the deductive (general→specific) and inductive (specific→general) logic, to be able to talk how a language works within a general framework.

COMPONENTS OF GRAMMAR & PLURALITY OF LANGUAGE FUNCTIONS
(The English clause regarded as the domain of four main areas of syntactic choice)


Grammar of 'experience'
The experiential Component
Actor + Process + Goal/ Affected/Causer
(Encoding of experience in terms of processes, objects, persons, qualities, states, abstractions & relations)
System of transitivity
(John | was throwing | the ball)
(Causer/Actor | Process | Affected/Goal)
Language as a communication system
Grammar of predication
The logical Component
Subject + Predicate
(Linguistic expression of such universal relations as those of 'and', 'or', negation & implication)
System of predication
(John | was throwing the ball)
(Subject | Predicate)
Grammar of speech-function
The speech-functional Component
Modal + Residual
(Statements, questions, commands exclamation, speaker's comment)
System of mood
(John was | throwing the ball)
(Modal | Residual)
Grammar of discourse
The discoursal Component
Theme + Rheme
Given + New
(Information structure – Components of a message)
System of theme
System of information
John | was throwing the ball
Theme | Rheme
John was throwing | the ball
Given | New

Against a synopsis of Halliday's grammatical theory in chapter 1, Verma explains the four interlocking and mutually defining categories — Unit, Structure, Class and System — and four scales of abstraction — Rank (a form of generalization, hierarchical ordering of linguistic units), Delicacy (a cline, based on purpose and scope of the description), Exponence (which explains move from one abstract category to another), and Depth (which helps to talk about recursive structure) — that constitute the basic components of systemic theory, which is claimed to provide the universals of grammatical theory (p. 32).

Chapter 2 explains the concept of structure as a theoretical category, a relational abstraction: "In systemic grammar structure is set up to show how it is made up of one or more complete member of the (given) unit text" (p. 35), i.e. sentence structure, clause structure, group structure, word structure. The author also differentiates between structure (which is syntagmatic/horizontal) and system (which is paradigmatic/vertical) though used complementarily, subsuming *relations* such as obligatory, optonal, compatible, concordial, etc.

**Professor & Head, Dept of Humanities & Social Sciences, Indian School of Mines, Dhanbad-826 004.*

In chapter 3, Verma further explains the concept of system *a la* Firth and Halliday. He clarifies how grammar itself takes the Form of a series of system networks and how each network represents the choices that are available to a given constituent type. As Halliday says, in systemic description, structure is "fully predictable".

The last chapter seeks to characterize certain aspects of systemic grammar. Verma explores "how the form of language has been determined by the functions it has evolved to serve", i.e. certain functional aspects of language such as ideational function, interpersonal function and textual function (language as social semiotic). He relates these functions to the structure-system model of description.

Though Shivendra K. Verma has tried to make his book readable, headings and sub-headings in the text have been mixed up which may cause difficulty to student-readers. I also suspect the ordering of the material in four chapters is at places not effective. Yet, he achieves his purpose to a reasonably good degree in that he not only familiarises the post-graduate students with the basic concepts of systemic linguistics but also highlights that consideration of both structure and function is important despite discussion of levels of complexity, abstraction and idealization.

As an applied language teacher, I should also be interested in a conceptual framework, a theoretical model or an approach to developing courses or materials that take adequate account of language as a coherent discourse which emphasizes language in use, or language as a communicative dynamic, creation and interpretation of written and spoken discourse in which linguistic units assume values by virtue of their contextual relationship.

What Verma presents by way of discussing, among other things, conceptual content and discourse value (against a cognitive and interactive process of learning a language) should encourage one to study further the 'applied' aspects of systemic grammar and suggest how best to use it in terms of, say, relational types or categories or implicit and explicit lexical, semantic and syntactic specifications.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be contacted
Nov. 25-27, 1996	National Seminar on Biotechnology : New Trends and Prospects	Theme: Education and Research in Biotechnology	Gurukul Kangri University, Hardwar	Prof. D.K. Maheshwari, Department of Botany, Gurukul Kangri University, Hardwar - 249 404.
Nov. 26-Dec 1, 1996	IAEWP Eighth World Congress to be held at Zagreb, Croatia	To promote International Peace	International Association of Educators for World Peace (IAEWP)	Dr. Nenad Javornik, IAEWP, Ulica Crvenog Kriza 14/1, Zagreb 100 00, Croatia OR Dr. Surya Nath Prasad Reader, Janata College of Education, Post Box No 113, Chandrapur - 442 401, Maharashtra
Dec. 5-7, 1996	ICDE Asia Conference on Open and Distance Education	Theme: Open and Distance Education	International Council for Distance Education Oslo, Norway	The Convener, ICDE Asia C/o AIAET, F-5-E, DDA Munirka, New Delhi-110 067.
Dec. 28-30, 1996	International Conference on Information Technology in Education and Training	Theme: Information Technology in Education and Training	All India Association for Educational Technology, New Delhi	Dr. D.N. Sansanwal, School of Education, Devi Ahilya University, A B Road, Indore-452 001.
Jan 29-31, 1997	16th Annual Convention and Conference on Access to Electronic Information	To focus on present changes, challenges, responsibilities and future probabilities in accessing electronic information	Society for Information Science, Bhubaneswar	Dr. P. Padhi C/o Department of Library & Information Science, Utkal University, Vani Vihar, Bhubaneswar-751 004

RESEARCH IN PROGRESS

A List of research scholars registered for doctoral degree in Indian Universities

BIOLOGICAL SCIENCES

Biochemistry

1. Jyotsna. **Biochemistry.** BHU. Dr H P Pandey, Department of Biochemistry, Faculty of Science, Banaras Hindu University, Varanasi.

2. Pramod Kumar. **A biochemical study on role of prostaglandin D_2 in inoomriac patients**. BHU. Dr H P Pandey, Department of Biochemistry, Banaras Hindu University, Varanasi.

3. Ramesh Kumar. **Role of prostaglandins in health & disease.** BHU. Dr H P Pandey, Department of Biochemistry, Banaras Hindu University, Varanasi.

Biotechnology

1. Ghosh, Maushumi. **Regulation of nitrogen fixation in azospirillum.** BHU. Dr A K Tripathi, School of Biotechnology, Banaras Hindu University, Varanasi.

2. Khare, Vineeta. **Invitro macrophage activation.** BHU. Prof Ajit Sodhi, School of Biotechnology, Banaras Hindu University, Varanasi.

3. Singh, Ritu. **Genetic transformation and tissue culture studies in chick pea.** BHU. Prof B D Singh, Department of Biotechnology, Banaras Hindu University, Varanasi.

4. Tripathi, Rachana. **Carbon sourceo utilization in azospirillum.** BHU. Dr A K Tripathi, School of Biotechnology, Banaras Hindu University, Varanasi.

Botony

1. Bajracharya, Sushil Lal **Studies on antagenistic potentiality of Rhizobacteria against a Fungal disease.** BHU. Prof Bharat Rai, Department of Botany, Banaras Hindu University, Varanasi.

2. Dubey, Suresh Kumar. **Methane flux in natural and agro-ecosystem soils.** BHU. Prof J S Singh, Department of Botany, Banaras Hindu University, Varanasi.

3. Kushwaha, Chandra Prakash. **Responses of plants to ecological stresses.** BHU. Dr K P Singh, Department of Botany, Banaras Hindu University, Varanasi

4. Kiran Kumari. **Studies on morpho genetic mutants cyanobacteria.** BHU. Prof D N Tiwari, Department of Botany, Banaras Hindu University, Varanasi.

5. Mitra, Anindita. **Physiological and Biochemical studies of salt tolerance in cyanobacteria.** BHU Dr A K Rai, Department of Botany, Banaras Hindu University, Varanasi.

6. Pandey, Meenakshee. **Comparative study on chemical and transposen induced mutagenesis in the cyanobacteria.** BHU. Prof D N Tiwari, Department of Botany, Banaras Hindu University, Varanasi.

7. Pandey, Mukesh. **Physiology & biochemistry of salt stress in cyanobacteria.** BHU. Dr R K Rai, Department of Botany, Banaras Hindu University, Varanasi.

8. Sharma, Neelam. **Karyomorphological and differentiation studies in Coleochaeta.** BHU. Dr B R Chaudhary, Department of Botany, Banaras Hindu University, Varanasi.

9. Shukla, Umesh Chandra. **Airpollution monitoring of an industrial area.** BHU. Dr B D Tripathi, Department of Botany, Banaras Hindu University, Varanasi.

10. Singh, Arun Kumar. **Ecological studies of euphorbia species from Varanasi.** BHU. Prof H R Sant, Department of Botany, Banaras Hindu University, Varanasi.

11. Singh, Mitresh Kumar. **Ecology of acerus calamus L.with special reference to phytochemical and pharmacological studies.** BHU. Prof H R Sant, Department of Botany, Banaras Hindu University, Varanasi.

12. Singh,Shailendra Kumar. **Ecological study of two important crops in relation to water inavigiment in poorly draine.** BHU. Prof H R Sant, Department of Botany, Banaras Hindu University, Varanasi.

EARTH SYSTEM SCIENCES

Geology

1. Singh, Dhruvendra. **Petro-Palynological and geochemical studies of permian coals from eastern son-valley coalfields, M.P. with special reference to their hydrocarbon source potential.** BHU. Dr N P Singh and Dr M P Singh, Regional Geological Lab, ONGC, Baroda-9.

2. Misra, Diwakar. **Lithofacies and paleoenvironmental studies of Jurassic rocks of Kachchh, main land.** BHU. Dr R N Tiwari, Department of Geology, Banaras Hindu University, Varanasi.

3. Singh, Ajay Prakash. **Economic geology genetic studies of Mussories phosphorite deposits lesser Himalaya, India.** BHU. Dr H P Sengupta, Department of Geology, Banaras Hindu University, Varanasi.

4. Tiwari, Ajay Kumar. **Geochemical evolution of Koderma Mica Pagmalitas, Bihar.** BHU. Dr R P Singh, Department of Geology, Banaras Hindu University, Varanasi.

Geophysics

1. Kumar, Virendra. **Electrical and electromagnetic modelling.** BHU. Dr G S Yadav, Department of Geophysics, Banaras Hindu University, Varanasi.

2. Kulbhushan, Arvind. **Seismotectonic studies of central Himalaya and adjoining area.** BHU. Dr V P Singh, Department of Geophysics, Banaras Hindu University, Varanasi.

3. Singh, Sunil Kumar. **Seismic data processing and development of new algorithmes.** BHU. Dr R D S Kushwaha, Department of Geophysics, Banaras Hindu University, Varanasi.

ENGINEERING SCIENCES

Engineering

1. Agrawal, Richa. **Studies on microsensors.** BHU. Dr N Dwivedi, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

2. Bharat Singh. **AI application in power system.** BHU. Dr S P Singh, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

3. Chaturvedi, Madan Mohan. **Engagement disengagement type instrument motion mechanisms.** BHU. Dr K S Tripathi, Department of Mechanical Engineering, IT, Banaras Hindu University, Varanasi.

4. Chaturvedi, Nagendra. **Analysis and optional design of towers.** BHU. Prof B N Roy and Dr V Kumar, Department of Civil Engineering, Banaras Hindu University, Varanasi.

5. Devendra Mohan **Biological treatment of toxic industrial waste water.** BHU. Prof U K Chaudhary, Department of Civil Engineering, Banaras Hindu University, Varanasi.

6 Dwivedi, Nikhilesh Kumar. **Rock mass classification and few technical investigation of Madhta Jharia hydro saptic project H P under special references tunnel construction.** BHU Dr T N Singh, Department of Mining Engineering, IT, Banaras Hindu University, Varanasi.

7. Ghosh, Kalyan S. **Dolomite refractories.** BHU Dr T Mukherjee and Dr G N Agrawal, The Tata Iron & Steel Company, Jamshedpur.

8. Jha, Ajit Kumar. **Erosion of concave bank of river and its stability criteria** BHU. Prof U K Chaudhary, Department of Civil Engineering, Banaras Hindu University, Varanasi.

9. Joshi, L M **Characterisation of interaction structure.** BHU Dr P K Jain and Prof B N Basu, Microwave Tubes Area, CEERI, Pilan (Raj.)

10 Mathur, Pallavi. **Microsensors.** BHU. Prof S K Srivastava, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

11. Mishra, Rajesh. **Space pollution shape size orientation and location of erosion pockel in the river model system under different flow condition.** BHU. Prof U K Choudhary, Department of Civil Engineering, Banaras Hindu University, Varanasi.

12 Mishra, Sanjay Kumar. **Assessment of impact on environment due to mining by remote sensing.** BHU. Dr D K Sharma, Department of Mining Engineering, Banaras Hindu University, Varanasi.

13. Mitrabina Ph. Devi. **Structural and petrology studies of Almora Nappe Kumaun Himalaya.** BHU. Dr M Joshi, Department of Civil Engineering, Banaras Hindu University, Varanasi.

14. Mohammad Shamim **Study of reinforced concrete joints under different unixial and biaxial moments.** BHU. Dr V Kumar, Department of Civil Engineering, Banaras Hindu University, Varanasi

15. Mohanti, Sandeep. **Bioseparation and diffusion of metal ions in biomaterials.** BHU. Dr G C Baral, Department of Chemical Engineering, Banaras Hindu University, Varanasi.

16 Monjazi, Masoud. **Rock blasting.** BHU. Dr T N Singh, Department of Mining Engineering, IT, Banaras Hindu University, Varanasi.

17. Niwas Kumar. **A computer assisted analysis of generative process plassning system for machined components.** BHU. Prof A Shanker, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

18 Pandey, Shivedayal. **Free board heat transfer.** BHU. Dr Om Prakash, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

19 Pandey, Umesh Kumar. **Numerical modelling of reinforced foundation system under dynamic condition.** BHU. Dr Chandan Ghosh, Department of Civil Engineering, Banaras Hindu University, Varanasi

20 Rai, Abhay Shanker. **River confluece energy looses.** BHU. Prof U K Chaudhary, Department of Civil Engineering, Banaras Hindu University, Varanasi.

21 Rai, Ajay Kumar. **Simulation of I C Engine.** BHU. Dr M N Gupta, Department of Mechanical Engineering, IT, Banaras Hindu University, Varanasi

22 Rai, Dhananjaya Kumar **Adaptive fuzzy classifiers.** BHU Dr Y P Singh and Dr R N Mukerjee, Department of Computer Engineering, IT, Banaras Hindu University, Varanasi.

23. Prakash, Rajiv. **Ceramic polymer composites.** BHU Dr R K Sinha, Department of Ceramic Engineering, IT, Banaras Hindu University, Varanasi.

24 Rajesh Kumar **Boiling heat transfer.** BHU. Dr K N Srivastava, Department of Mechanical Engineering, IT, Banaras Hindu University, Varanasi

25. Rajesh Kumar. **Digital protection of power transformer.** BHU. Dr D N Viswakarma, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

26 Saha, Ratan. **Studies on the electrical characteristics of high speed devices** BHU. Prof B B Pal and Dr R U Khan, Department of Electronics Engineering, Banaras Hindu University, Varanasi

27. Sharma, Amit Kumar **FEM analysis to problems of diesel engine.** BHU. Dr N K Samria, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

28 Shukla, Rakesh R. **Environmental impact assessment and management in a metaliferous mine.** BHU. Prof K K Gupta, Department of Mining Engineering, IT, Banaras Hindu University, Varanasi

29. Rajnath Singh. **Soft ware maintain ability and reliability metrics.** BHU. Dr A K Tripathi, Department of Computer Engineering, IT, Banaras Hindu University, Varanasi.

ENVIRONMENTAL SCIENCES

Medical Sciences

1. Amarasingha, A P G. **Study of immunomodulatory action of Rathakalka in infants.** BHU. Dr R D Sharma, Department of Prasuti Tantre, Banaras Hindu University, Varanasi.

2. Aprajita. **Ecological and pharmacological studies of some medicinal plants.** BHU. Prof J K Ojha, Dr O P Upadhyay, Department of Dravyaguna, IMS, Banaras Hindu University, Varanasi.

3. Barat, Romi. **Development of a topical dosage for the treatment of periodontal diseases.** BHU. Dr J K Pandit, Department of Pharmaceutics, IT, Banaras Hindu University, Varanasi.

4. Bahadur, Raj. **Role of Arjuna and Kushtha in diabetic cardiomypathy.** BHU. Prof O K Ojha, Department of Dravyaguna, IMS, Banaras Hindu University, Varanasi.

5. Dubey, Subhas Chandra. **Studies of fungal diseases in some important medicinal plants.** BHU. Prof J K Ojha, Dr S D Dubey, Department of Dravyaguna, Banaras Hindu University, Varanasi.

6. Mishra, Jyoti. **Sthaniye roop se upalabdha ausadhiya ke dwara rog chikitsa prabandha.** BHU. Dr V K Joshi, Department of Dravyaguna, IMS, Banaras Hindu University, Varanasi.

7. Mishra, Geeta. **A study of social stress in the aged.** BHU. Dr S K Tewari, Department of Kayachikitsa, Banaras Hindu University, Varanasi.

8. Mukherjee, Shantanu. **Breast feeding lactational amenorrhoea and fertility behaviour - A mathmetical approach.** BHU. Dr R N Mishra, Department of Preventive Social Medicine, Banaras Hindu University, Varanasi.

9. Narayan, Rajesh. **Prognostic markers in oral cancer.** BHU. Dr A K Khanna, Department of Surgery, IMS, Banaras Hindu University, Varanasi.

10. Nagabh Rashmi. **Extension education in leprosy.** BHU. Prof P Kaur, Department of Preventive Social Medicine, IMS, Banaras Hindu University, Varanasi.

11. **Natarajan, D. Design and evaluation of dental implants.** BHU. Dr J K Pandit, Department of Pharmaceutics, IT, Banaras Hindu University, Varanasi.

12. Pandey, Prabhu Nath. **Epiderman growth factor receptor (EPG Fr) in Gliomas brain.** BHU. Prof S Mohanty, Department of Surgery, IMS, Banaras Hindu University, Varanasi.

13. Prakash, Shri. **A comparative clinical study on infective hepatitis with special reference to its treatment with some indigenous drugs.** BHU. Dr N P Rai, Department of Kayachikitsa, IMS, Banaras Hindu University, Varanasi.

14. Raghubanshi, Rakesh Singh. **Performance of different cultivates of papaya on papain production.** BHU. Dr M Sahu and Dr B P Singh, Department of Shalya-shalakya, Banaras Hindu University, Varanasi.

15. Rai, Dinesh Kumar. **A study on demographic behaviour and physical growth of children in Varanasi.** BHU. Dr T B Singh, Department of Pediatrics, Banaras Hindu University, Varanasi.

16. Rastogi, Leena. **Biochemical changes during ulceration in experimental and their modification by antiulcer drugs.** BHU. Prof R K Goel, Department of Pharmacology, IMS, Banaras Hindu University, Varanasi.

17. Sharma, Vandana. **Role of sadavritta (good conducts) in patients suffering from psycho-somatic diseases.** BHU. Dr B N Upadhyaya, Department of Kayachikitsa, IMS, Banaras Hindu University, Varanasi.

18. Singh, Anil Kumar. **Niscalakara and his contribution to dravyaguna.** BHU. Dr S D Dubey, Department of Dravyaguna, IMS, Banaras Hindu University, Varanasi.

19. Singh, Maya. **A study of bio-social correlates of child development.** BHU. Dr S P Singh, Department of Preventive Social Medicine, Banaras Hindu University, Varanasi.

20. Singh, Om Prakash. **Treatment of some skin diseases.** BHU. Dr N P Rai, Department of Kayachikitsa, Banaras Hindu University, Varanasi.

21. Singh, Ram Bhuwan. **Socio-economic status of past and present.** BHU. Prof H C Saxena, Department of Preventive Social Medicine, IMS, Banaras Hindu University, Varanasi.

22. Singh, Sanjay Kumar. **Ecological behaviour and medicinal value of amorra tohitaka.** BHU. Prof G C Prasad and Dr K P Singh, Department of Shalya shalakya, IMS, Banaras Hindu University, Varanasi.

23. Singh, Satish Kumar. **Morophological and Phytochemical studies on pasan bheda (bryphyllum pentatum) collected from different areas.** BHU. Dr M Sahu, Department of Shalya Shalakya, Banaras Hindu University, Varanasi

24. Srivastava, Pankaj Kumar. **Manas rogo me Ayurvedic ausadhiya ka yogdan-apasmar ke vishes sandarbha me.** BHU. Dr S D Dubey, Department of Dravyaguna, Banaras Hindu University, Varanasi.

25. Srivastava, Rajiv Kumar. **Spectrum of mitral valve disease and its management.** BHU. Prof M N Khanna, Department of Surgery, Banaras Hindu University, Varanasi.

26. Singh, Sudarshan. **Plant pathological studies of some important medicinal plants.** BHU. Dr S D Dubey, Department of Dravyaguna, IMS, Banaras Hindu University, Varanasi.

27. Tripathi, Sarita. **Environment and health management.** BHU. Dr S C Mohapatra, Department of Preventive Social Medicine, Banaras Hindu University, Varanasi.

28. Tripathi, Krite. **Celooscopic evaluation of cervix as an assessment in the diagnosis of Cervical neoplasia.** BHU. Prof (Mrs) P Tiwari, Department of Obstetrics & Gynaecology, IMS, Banaras Hindu University, Varanasi.

29. Tiwari, Pallavi. **Microbiological studies on contamination of salad vegetables and its prevention.** BHU. Dr S K

Tewari, Department of Kayachikitsa, Banaras Hindu University, Varanasi.

30. Varma, Archana. **Studies on medicinal plants of BHU campus.** BHU. Dr V K Joshi, Department of Dravyaguna, Banaras Hindu University, Varanasi.

31. Verma, Priti. **A study on the modulation of vascular reactivity in normotensive and hypertensive animals by nitric oxide and free radicals.** BHU. Dr A K Jaiswal, Department of Pharmacology, Banaras Hindu University, Varanasi.

32. Vijay Luxmi. **Effect of some medicinal plants on biochemical changes of experimental model.** BHU. Dr O P Upadhyay, Department of Dravyaguna, IMS, Banaras Hindu University, Varanasi.

33. Yadava, Ravindra Kumar. **Pancha mehabuto ka garbha me yogdan.** BHU. Dr M Dwivedi, Department of Prasuti Tantra, Banaras Hindu University, Varanasi.

Zoology

1. Alex, Anitha B. **Biochemical response to stress in freshwater teleosts.** BHU. Prof B K Ratha, Department of Zoology, Banaras Hindu University, Varanasi.

2. Aravindan, N. **Biochemical adaptations in freshwater air, breating teleosts.** BHU. Prof B K Ratha, Department of Zoology, Banaras Hindu University, Varanasi.

3. Bhattacharya, Lohtika. **Molecular genetic analysis of a new tumour suppressor gane lethel (3) tumourous brain, in Drosophila Melanogaster.** BHU. Dr J K Roy, Department of Zoology, Banaras Hindu University, Varanasi.

4. Diptiman Chanda. **Endocrine regulation of ovary.** BHU. Dr A Krishna, Department of Zoology, Banaras Hindu University, Varanasi.

5. Mandal, Sudip. **Apoptosis in drosophila.** BHU. Prof S C Lakhotia, Department of Zoology, Banaras Hindu University, Varanasi.

6. Ojha, Arvind Kumar. **Metabolic response to stress in fish.** BHU. Prof B K Rath, Department of Zoology, Banaras Hindu University, Varanasi.

7. Panigrahi, Anil Kumar. **Analysis of chromatin structure and gene expression during aging.** BHU. Dr M M Chaturvedi, Department of Zoology, Banaras Hindu University, Varanasi.

8. Subarayan, M. **Topological organisation of DNA during spermatogenesis.** BHU. Dr R Raman, Department of Zoology, Banaras Hindu University, Varanasi.

9. Tiwari, Akhilesh Chandra. **Neuroendocrine control of development in poultry birds.** BHU. Dr C M Chaturvedi, Department of Zoology, Banaras Hindu University, Varanasi.

10. Tomar, Raghuvir Singh. **Biochemistry of aging analysis of chromatin conformation and gene expression.** BHU. Dr M M Chaturvedi, Department of Zoology, Banaras Hindu University, Varanasi.

11. Tripathi, Kanak. **Nutritional pattern in fresh water air breathing teleost.** BHU. Prof B K Ratha, Department of Zoology, Banaras Hindu University, Varanasi.

MATHEMATICAL SCIENCES

Mathematics

1. Achal Singh. **Urn models.** BHU. Prof V V Menon, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

2. Arunima Kumari. **Duality in nonsmooth optimization.** BHU. Prof R N Mukherjee, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

3. Bataineh, Ahmad Heyil Abdullah. **Convergence fixed points and mathematical programming.** BHU. Prof S N Lal, Department of Mathematics, Banaras Hindu University, Varanasi.

4. Chaterjee, Jayanti. **Special functions of complex analysis.** BHU. Dr I K Khanna, Department of Mathematics, Banaras Hindu University, Varanasi.

5. Dubey, Jitendra Kumar. **Certain problems in the theory of summability.** BHU. Dr L M Tripathi, Department of Mathematics, Banaras Hindu University, Varanasi.

6. Dwivedi, Manoj Kumar. **Operations research (optimization theory).** BHU. Prof R N Mukherjee, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

7. Garg, Manoj Kumar. **Solution of diffusive convective equation through prrous media.** BHU. Dr N K Singh, Department of Mathematics, Banaras Hindu University, Varanasi.

8. Kaushal Kumar. **Functional analysis (operation theory).** BHU. Dr Nand Lal, Department of Mathematics, Banaras Hindu University, Varanasi.

9. Mandal, Shyamal. **Multiobjective mathematical programming.** BHU. Prof R N Mukherjee, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

10. Maurya, Dharmendra Kumar. **Geometry of manifolds.** BHU. Dr R D S Kushwaha, Department of Mathematics, Banaras Hindu University, Varanasi.

11. Pandey, Manoj Kumar. **Kinematical aspects of MFD flows.** BHU. Dr R B Mishra, Department of Mathematics, Banaras Hindu University, Varanasi.

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AUSTRALIA INDIA

New Horizons in Education and Training Conference

Relations between Australia and India will be the subject of Australia India-New Horizons Program; the biggest international promotion ever undertaken by Australia. The New Horizons program aims to provide a platform to develop deeper mutual awareness and partnerships between Australia and India, as well as showcase Australian capabilities, achievements, and talent. Business, trade, technology, culture, science, and sport will be some of the areas explored; but one of the major linchpins of New Horizons, will be its emphasis on training and education.

Education and training is an area of vital importance to both Australia and India, and both countries recognise that receptive, and flexible education and training services are needed to cope with the diverse demands of an industrial society. While Australia and India differ in circumstances and education systems, both countries share similar goals and aspirations in this regard. Bilateral links and greater cooperation in education and training between the two countries can help achieve such goals.

Australia has much to offer in education and training. Amongst OECD countries, Australia's education system is regarded as the most advanced and responsive to the needs of a flexible, technologically sophisticated and export oriented economy. Some notable achievements in Australian education has been its development of sophisticated vocational training, incorporating the latest technology into the infrastructure of education institutions, commitment to research, and the linkage of education and training to the needs of modern business and industry. Australia's achievements have been possible because educators were prepared to embark on radical change and reform of the education system in line with a changing world. As the process of reform is ongoing, Australia has much to gain from a partnership with India in the area of education and training.

The New Horizons Education and Training program aims to address these needs through a series of relevant events. The centrepiece of the program is the Australia India-New Horizons in Education and Training Conference, to be held on 24-25 October, 1996. The conference will be attended by 1000 representatives from Australian and Indian education, training, and business sectors. High calibre presenters from each of these sectors will be in attendance. From Australia, these include the Minister for Employment, Education, Training, and Youth Affairs (DEETYA), the Hon. Senator Amanda Vanstone and the Secretary of DEETYA, Mr. Sandy Hollway. From India, the Minister of Human Resource Development, Hon. S.R. Bommai and the Secretary of the Department of Education, Mr. P.R. Gupta will officiate.

The program has been developed to showcase Australia's education, training, and research capabilities, allow each country to learn about the other's education and training systems, network with counterparts, enhance existing relationships between both countries and explore opportunities for new ones. Topics to be explored will include education reform, funding and management, internationalisation of education, curriculum challenges, industry linkages and technology in education across the sectors of Higher Education, Vocational Education and Training, and Schooling.

The conference has been especially designed to account for the diverse range of issues and opportunities it envisages. Plenary sessions at the beginning of the conference will generally assess the differences between Australian and Indian education systems, allowing delegates to understand each country's methods of education and training. Parallel sessions will target specific issues, encouraging sector representatives to link with their counterparts and examine particular areas thoroughly. Network sessions will allow delegates to network in groups, around particular issues, or to present special projects, within small, intimate surroundings.

The Australia India-New Horizons Education and Training program will include other events in addition to the conference. The Australian International Education Foundation (AIEF) Visiting Fellowship program has been launched; where twelve Fellowships will be awarded to 6 Australians and 6 Indians, for the purposes of cross cultural research, exchange or study. The program is designed to foster ongoing professional and academic links between the two countries, and the selection process has commenced. A Business Management Workshop will bring together 50 prominent figures from business and academia, to promote networks and firm links between the management schools of both countries. Education and training components will also feature in other New Horizon programs, like business, trade, environmental management, and agriculture events.

The Australia India-New Horizons Education and Training Program promises a wealth of opportunities for bilateral links between Australia and India and a comprehensive coverage of mutual issues and concerns about education and training.

For further information about The Australia India-New Horizons in Education and Training Conference, please contact :

The AIEF New Horizons Secretariat,
***Care:* Inter-Group 'Bali Bhawan' (II floor),**
B-4, Lajpat Nagar-II, New Delhi-110024
Tel: (011) 6210921 & 6453317
FAX: (011) 6475793 & 6834873

Registrations close 7 October 1996

Topics for Discussion

The Australia India-New Horizons in Education and Training Conference aims to give a comprehensive coverage of the many issues involved with education and training today. Here are a few examples of the topics which will be discussed at the conference by Australians.

Information Technology in Teaching and Research, by Professor David G Beanland, Vice-Chancellor, Royal Melbourne Institute of Technology (RMIT)

Information technology is rapidly changing the operation of universities. While the impact has already been significant it will continue to accelerate over the next few decades.

Many universities are now fully networked within their campuses and most are connected to the Internet. Widespread access to personal computers, supported by rapidly developing software and expanding broadband networks provides many new options for the conduct of research, the presentation of learning experiences and their administration.

Professor Beanland will discuss some of these issues using the perspective and experience of Australian universities. In particular it describes the development and use of the Australian inter-university communications network, AARNet, which provides connection to the world-wide-web.

Co-operative Education — the Australian Experience, by Professor Bob Breakspere, Central Queensland University, Australia

Co-operative education (Co-op) is a strategy of applied learning which combines the rigour of accredited academic program with periods of paid, supervised and relevant workplace experience for the undergraduate student. Typically a student would spend one year of a degree course working in industry or commerce.

The work experience is an integral part of the program of study and is an essential component in the final assessment of the degree qualification.

Co-operative education is thus a three-way partnership between the University, industry/commerce and the student.

Professor Breakspere will discuss the advantages of co-operative education to the student, employer, and university.

As co-operative education programs have been operating internationally since 1957, the advantages of international links in co-operative education (between, for example, Australia and India) will be explored and the methods of assessment of the periods of work experience discussed.

Research Management in Australian Universities, by Professor Paul Clark, Deputy Vice-Chancellor, Victoria University of Technology

Every Australian university has a program of research and postgraduate research training which it is required to manage. Although research by academics is an individual or small group activity, the management and coordination of the overall research effort is focused at the university level.

The framework for this is provided by a Research Management plan, a strategic document which declares the university's research policy's and goals. In addition it specifies the university's approach to the resourcing and development of its research and researchers, identifies any priority are assets performance targets and review mechanisms, analyses the required infrastructure development and affirms the regulatory environment operating within the university.

In general, responsibility for managing research and development in the university resides with a senior academic appointed at Pro- or Deputy Vice-Chancellor level, while the Academic Board and its Research Committee provide mechanisms for consultation and policy development. Most universities have an Office for Research which offers administrative support and assistance to researchers, interfaces with external funding agencies and administers the internal grant and data collection programs. Commercialisation of research outcomes is approached in several ways, in some cases through the establishment of a proprietary company as the university's commercial arm and in others by assigning responsibility to the Faculties or the Office for Research.

Professor Clark will review the features which are common to research management across the Australian higher education system and point to some of the recent developments.

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- ★ The PGP Session starts in the second week of July 1997

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